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REPORT ON THE CONSERVATION STATUS
OF Grindelia howellii, A CANDIDATE
THREATENED SPECIES

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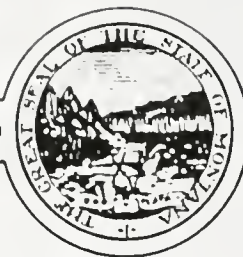
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REPORT ON THE CONSERVATION STATUS OF Grindelia howellii, A CANDIDATE THREATENED SPECIES

Taxon name:	<u>Grindelia howellii</u> Steyermark
Common name:	Howell's gum-weed
Family:	Asteraceae (Compositae)
States where taxon occurs:	U.S.A., Montana, Idaho
Current federal status:	USFWS Notice of Review, Category 2
Recommended federal status:	USFWS Notice of Review, Category 2
Author of report:	J. Stephen Shelly
Original date of report:	31 October 1986
Date of most recent revision:	N/A
Individual to whom further information and comments should be sent:	J. Stephen Shelly Montana Natural Heritage Program State Library Building 1515 E. 6th Avenue Helena, MT 59620

TABLE OF CONTENTS

	<u>Page</u>
I. SPECIES INFORMATION	
1. Classification and nomenclature	1
2. Present legal or other formal status	2
3. Description	3
4. Significance	5
5. Geographical distribution	5
6. General environment and habitat description	51
7. Population biology of taxon	56
8. Population ecology of taxon	68
9. Current land ownership and management responsibility	70
10. Management practices and experience	71
11. Evidence of threats to survival	72
II. ASSESSMENT AND RECOMMENDATIONS	
12. General assessment of vigor, trends, and status	73
13. Recommendations for listing or status change	73
14. Recommended critical habitat	74
15. Conservation/recovery recommendations	74
16. Interested parties	75
III. INFORMATION SOURCES	
17. Sources of information	77
18. Summary of materials on file	78
IV. AUTHORSHIP	
19. Initial authorship	78
20. Maintenance of status report	78
V. NEW INFORMATION	
21. Record of revisions	79
LITERATURE CITED	80
APPENDIX A: Computer printouts	82

I. SPECIES INFORMATION

1. Classification and nomenclature.

A. Species.

1. Scientific Name.

- a. **Binomial:** Grindelia howellii J. A. Steyermark
- b. **Full bibliographic citation:** Steyermark, J.A. 1934. Studies in Grindelia. II: A monograph of the North American species of the genus Grindelia. Ann. Mo. Bot. Gard. 21: 549-550.
- c. **Type specimens:** Dry arid bluff tops, St. Maries River, "Kootenai" Co., Idaho, Aug. 10, 1894, L. F. Henderson 2791. Holotype: GH; isotypes: RM, US.

2. Pertinent synonyms: None.

3. Common name: Howell's gum-weed.

4. Taxon code: PDAST470EO (Montana Natural Heritage Program).

5. Size of genus: Probably more than 50 species, native to western North America and western South America, and introduced elsewhere (Cronquist, 1955).

B. Family classification.

1. Family name: Asteraceae.

2. Pertinent family synonym: Compositae.

3. Common names for family: Aster Family, Sunflower Family.

C. Major plant group: Dicotyledoneae.

D. History of knowledge of taxon: Grindelia howellii was first collected in 1894 by L. F. Henderson, along the St. Maries River in "Kootenai" County, Idaho. This collection (Henderson 2791) included the eventual holotype when the species was described in a monograph of the genus by J. A. Steyermark (1934).

The next collections of the species were made in 1966 by D. W. Woodland, when it was found for the first time in Montana, near Placid Lake in

Powell County (Woodland 827, 906, MONTU; Woodland, 1967). It was sporadically collected in Missoula and Powell Cos., Montana, from 1967-1984, mostly during status survey work done by T.J. Watson (see p. 77). The first recollections in Idaho were in 1978, when the species was relocated along the St. Maries River in what is now Benewah County (S. Caicco, Idaho NHP, pers. comm.).

In 1985, the Montana Natural Heritage Program (MTNHP) was contracted by the U.S. Fish and Wildlife Service, with funds appropriated under Section 15 of the Endangered Species Act, to conduct a status survey of Grindelia howellii in Montana (Order No. 60181-2197-5). In July-August 1986, field surveys were conducted by the author, with assistance from Ginger V. King, a volunteer for MTNHP. In addition, some fieldwork was conducted by George B. Chaffee, under contract with MTNHP. Field surveys were conducted in the Blackfoot, Clearwater, and Swan River drainages, Missoula and Powell Counties, Montana.

Seventeen occurrences of Grindelia howellii in Montana were initially recorded by MTNHP prior to the start of the survey. During the survey, seven of these were relocated; ten others were searched for but not relocated. Thirty-eight new locations were recorded; collections were made at 35 of these, and the remaining three were recorded as sight records. All data and photos are from 1986, except where noted.

E. **Comments on current alternative taxonomic treatments:** There are no known current alternative taxonomic treatments.

2. **Present legal or other formal status.**

A. **International:** None.

B. **National.**

1. **United States.**

a. **Present designated or proposed legal protection or regulation:** U.S. Fish and Wildlife Service: Currently, the species is under notice of review for listing as a threatened species under the U.S. Endangered Species Act of 1983 (U.S. Department of Interior, 1985). Specifically, it is listed in Category 2 (taxa for which information now in possession of the Service indicates that proposing to list them as

endangered or threatened species is possibly appropriate, but for which substantial data on biological vulnerability and threats are not currently known or on file to support the immediate preparation of rules).

- b. **Other current formal status recommendations:** The species is currently listed as "threatened throughout range" (global rank = G3) by the MTNHP (1986). Listed as "Endangered" by Ayensu and DeFilipps (1978).
- c. **Review of past status:** The species was earlier listed as "Threatened" by the Service (U.S. Department of Interior, 1975). It was listed in Category 1 (taxa for which the Service presently has sufficient information on hand to support the biological appropriateness of their being listed as Endangered or Threatened species) in the earlier Notice of Review (U.S. Department of Interior, 1980). In 1980, a draft proposal was written to list Grindelia howellii as a Threatened species, but the proposed rule was never published in the Federal Register (USFWS Office of Endangered Species, Helena, MT, pers. comm.).

C. State.

1. Montana.

- a. **Present designated or proposed legal protection or regulation:** None.
- b. **Other current formal status recommendations:** The species is currently listed as "Threatened in Montana" (state rank = S3) by the MTNHP (1986).
- c. **Review of past status:** Previously listed as "Recommended Endangered" by the Montana Rare Plant Project (Lesica et al., 1984).

3. Description.

- A. **General nontechnical description:** A stout herb with stems which are mostly about 15-36 inches tall. The stems are glandular, and in some cases

also have long white hairs, at least on the upper portions. The flowering heads have many small florets, the outermost of which have dull to rather bright yellow rays about 1/2-3/4 inches long; these heads are about 1-1 1/4 inches in diameter. The green bracts beneath the rays are very sticky-gummy, and the individual bract tips are often completely turned downward. The leaves are generally about 1 1/2-3 inches long, and the basal leaves may often be longer. The leaf margins vary from entire in outline to having some small teeth along their edges. The plants are in full flower in July and August.

- B. **Technical description:** Stems stout, greenish or pale rose-purplish to buff, angled or grooved (especially above), subfastigiately branched above with stoutish somewhat elongated foliose floriferous branchlets bearing 1-several heads, copiously to sometimes sparsely glandular, and less frequently villous, mostly 6-14 cm tall; leaves relatively thin, pale green, sparsely or infrequently very resinous-punctate, the surfaces mostly rough and dull, the margins remotely dentate or denticulate to entire, the cauline leaves generally 2-7 cm long, 0.7-2.2 cm broad, oblong to broadly oblong-ovate or ovate-lanceolate, acute to acutish, the upper not much reduced and becoming glandular or glandular-puberulent; heads radiate, 2.5-3 cm broad; disk campanulate-hemispherical, 1.1-1.3 cm high, 1.5-3 cm broad; involucre moderately to heavily resinous, 6-7 seriate, very conspicuously graduated, bracts linear-lanceolate to lanceolate with subulate subterete thickened tips, 3.5-10 mm long, mostly all conspicuously revolute or recurved, glabrous; rays mostly 20-28, rather dull to bright yellow, 9-19 mm long; achenes oblong, 3.5-4.3 mm long, 1.5-2 mm broad, stramineous, striate or ribbed on the faces, mostly truncate at apex (adapted from Steyermark, 1934; Cronquist, 1955).
- C. **Local field characters:** Two other Grindelia species are known to occur in Montana: G. nana and G. squarrosa. Of these two, only G. squarrosa was found during this study to occur sympatrically with G. howellii. The main distinguishing feature of G. howellii is its possession of glandular, and sometimes villous, stems; this characteristic is best expressed on upper portions of the stems, and on the branches below the heads. In contrast, G. squarrosa has stems which are entirely glabrous. In some populations,

individuals of both species are present, and plants which are intermediate in this regard can be found. Only a few populations were found to have plants with stems which are conspicuously villous in addition to being glandular; these sites include Barber Creek (051) and Holland Lake (001) in Missoula County. In Montana, the species most often possesses stem vestiture which is only glandular in nature.

Foliar characteristics (i.e., leaf margin and outline, degree of clasping of the leaf bases) are emphasized in technical keys (Dorn, 1984; Cronquist, 1955). However, these features were not found to be useful or necessary in distinguishing G. howellii and G. squarrosa in the area covered during this study.

- D. Identifying characteristics of material which is in interstate or international commerce or trade: No interstate or international commerce or trade known.
- E. Photographs and line drawings: Figure 1 provides a copy of the illustration of this species, enlarged from Cronquist (1955). The color slides (p. 7) are duplicates of those taken at the sites indicated. Additional slides from other locations are housed at the MTNHP office in Helena, MT.

4. Significance.

- A. Natural: Grindelia howellii is a fairly well-marked species which may be considered a regional endemic, with a bipartite distribution in northern Idaho and western Montana. It is apparently closely related to G. squarrosa, and thus is of evolutionary significance in studies addressing divergence in the genus. Grindelia howellii does not appear to have any peculiar adaptations or structures, or roles in stabilizing landforms. Obligate relationships with other species are unknown.
- B. Human: Grindelia howellii would be of scientific significance in studies of the biosystematic relationships of the related taxa in the genus. Otherwise, the species has no known agricultural, economic, horticultural, or other known human uses or significance.

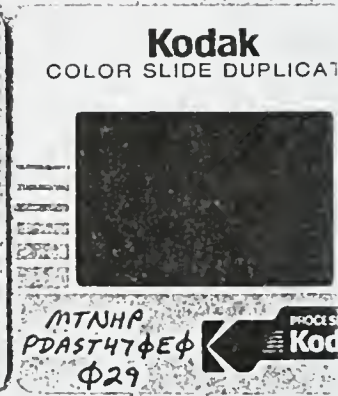
5. Geographical distribution.

- A. Geographical range: Grindelia howellii is known, historically and currently, from two geographical areas: a.) Benewah County, Idaho, U.S.A., and



Grindelia howellii

FIGURE 1. Enlarged from Cronquist (1955).



b.) Missoula and Powell Counties, Montana, U.S.A.
(Figure 2, p. 9).

B. Precise occurrences.

1. Populations currently known extant (Table 1, pp. 10-21, listed by county); maps pp. 25-50.
2. Populations known or assumed extirpated (Table 2, pp. 22-24): Of the ten previously known occurrences which were not relocated during this study, and thus are presumed to be extirpated, eight of these were roadside sites along major, heavily maintained highways. These sites were all in Missoula County, and include:

004-Sunflower Mountain
007-McNamara Bridge
008-Potomac
009-Blue Slide
014-Angevine
015-Greenough Roadside
016-Holland-Pierce Creek
017-Condon

These sites apparently consisted of only one or a few individuals, and it is highly likely that they have been destroyed by various road maintenance activities, including grading, road widening, and/or herbicide spraying.

At the Blanchard Lake site (003), the species was originally described as "scarce" (P.F. Stickney 2347, RM). Though the habitat in the area of the collection was found to be a largely undisturbed Festuca scabrella grassland, no plants could be found. Reasons for apparent extirpation here are unknown, but may have included poor reproductive ability and/or interspecific competition. The Clearwater Access site (011) was located in a state-maintained fishing access area along a major highway. Again, the species was originally known to be rare here, with only five plants having been observed in 1976. The area is heavily used and maintained, and Grindelia howellii was most likely extirpated as a result of these disturbances and activities.

3. Historically known populations where current status not known (data from Idaho Natural

FIGURE 2. Geographic range of *Grindelia howellii* Steyermark, Idaho and Montana, U.S.A.

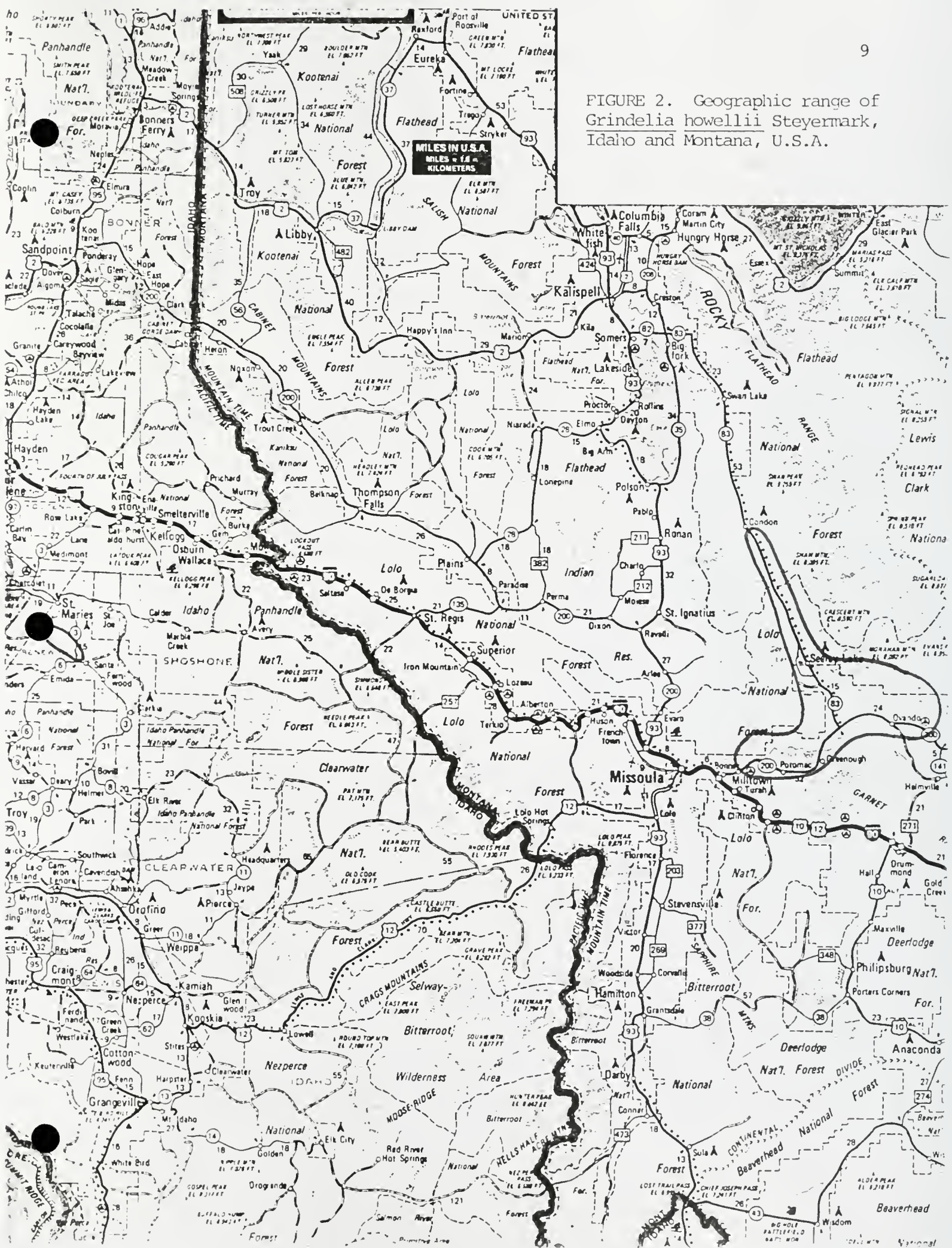


Table 1. Populations Currently Known Extant

Occurrence number: 001	Sitename: HOLLAND LAKE
COUNTY: MISSOULA	
Latitude: 472619 Longitude: 1133843	Elevation: 4000
Township & Range: 019N016W Section: 04	Subsection: NE4NW4
USGS Quad: CYGNET LAKE	
Size: 7.5 minute series	
Year of initial discovery: 1982	Date of most recent observation: 1986-07-29
Directions: NORTH SIDE OF HOLLAND LAKE ROAD, 1.2 MILES E. OF MONTANA ST. HWY. 83.	
Occurrence number: 005	Sitename: BLANCHARD FLATS
COUNTY: MISSOULA	
Latitude: 470244 Longitude: 1132213	Elevation: 4200
Township & Range: 015N014W Section: 21	Subsection: NE4
USGS Quad: WOODWORTH	
Size: 7.5 minute series	
Year of initial discovery: 1983	Date of most recent observation: 1986-07-31
Directions: BLANCHARD FLATS, BLACKFOOT-CLEARWATER WILDLIFE MANAGEMENT AREA, CA. 3.0 AIR MI. DIRECTLY NORTH OF CLEARWATER JUNCTION, ADJACENT TO POWER LINE.	
Occurrence number: 006	Sitename: VAUGHN RANCH
COUNTY: MISSOULA	
Latitude: 470635 Longitude: 1132947	Elevation: 4100
Township & Range: 016N015W Section: 28	Subsection: SE4
USGS Quad: SALMON LAKE	
Size: 7.5 minute series	
Year of initial discovery: 1966	Date of most recent observation: 1986-07-30
Directions: ALONG VAUGHN CREEK RD. (LOLO N.F. RD. 4337), JUST S. OF BRIDGE OVER OWL CREEK, AT TURN-OFF TO OLD RANCH (WILBER VAUGHN RANCH).	
Occurrence number: 010	Sitename: SALMON-SEELEY ROAD
COUNTY: MISSOULA	
Latitude: 470853 Longitude: 1132801	Elevation: 4000
Township & Range: 016N015W Section: 14	Subsection: NW4
USGS Quad: SEELEY LAKE EAST	
Size: 7.5 minute series	
Year of initial discovery: 1982	Date of most recent observation: 1986-07-30
Directions: CA. 1 MI. S. OF SEELEY LAKE, ALONG ST. HWY. 83 AND IN MEADOW E. OF HWY., 0.2 MI. N. OF MORRELL CREEK.	

Table 1. Populations Currently Known Extant

Occurrence number: 024	Site name: VAUGHN CREEK
COUNTY: MISSOULA	
Latitude: 470503 Longitude: 1133100	Elevation: 4600
Township & Range: 015N015W Section: 05	Subsection: SE4
USGS Quad: BELMONT POINT	
Size: 7.5 minute series	
Year of initial discovery: 1986	Date of most recent observation: 1986-07-30
Directions: ALONG LOST PRAIRIE-PLACID ROAD, 1.65 AIR MILES S. OF PLACID LAKE, CA. 0.2 AIR MILES SE. OF VAUGHN CREEK.	
Occurrence number: 025	Site name: PLACID-LOST PRAIRIE ROAD
COUNTY: MISSOULA	
Latitude: 470518 Longitude: 1132948	Elevation: 4700
Township & Range: 015N015W Section: 04	Subsection: NE4
USGS Quad: SALMON LAKE	
Size: 7.5 minute series	
Year of initial discovery: 1986	Date of most recent observation: 1986-07-30
Directions: ALONG LOST PRAIRIE-PLACID ROAD, 2 AIR MILES WNW. OF LOST PRAIRIE, 1.5 AIR MILES SOUTH OF OWL CREEK.	
Occurrence number: 026	Site name: HORSEHEAD ROAD
COUNTY: MISSOULA	
Latitude: 470412 Longitude: 1132937	Elevation: 4800
Township & Range: 015N015W Section: 09	Subsection: SE4
USGS Quad: SALMON LAKE	
Size: 7.5 minute series	
Year of initial discovery: 1986	Date of most recent observation: 1986-07-30
Directions: ALONG HORSEHEAD ROAD (CHAMPION INTERNATIONAL LOGGING ROAD), 1.8 AIR MILES WSW. OF LOST PRAIRIE, CA. 2.8 AIR MILES SOUTH OF OWL CREEK.	
Occurrence number: 027	Site name: LOST HORSE CREEK
COUNTY: MISSOULA	
Latitude: 470211 Longitude: 1132501	Elevation: 4000
Township & Range: 015N014W Section: 19	Subsection: SW4SE4
USGS Quad: SALMON LAKE	
Size: 7.5 minute series	
Year of initial discovery: 1986	Date of most recent observation: 1986-07-31
Directions: ALONG LOST HORSE CREEK, 1.0 AIR MILES WNW. OF ITS CONFLUENCE WITH CLEARWATER RIVER, CA. 3.3 AIR MILES NW. OF CLEARWATER JUNCTION.	

Table 1. Populations Currently Known Extant

Occurrence number: 028 Sitename: LOST HORSE ROAD
COUNTY: MISSOULA
Latitude: 470221 Longitude: 1132600 Elevation: 4160
Township & Range: 015N015W Section: 24 Subsection: S2SE4
USGS Quad: SALMON LAKE
Size: 7.5 minute series
Year of initial discovery: 1986 Date of most recent observation: 1986-07-31
Directions: ALONG CHAMPION INTERNATIONAL LOGGING ROAD, 0.34 AIR MILES
SOUTH OF LOST HORSE CREEK, CA. 2 AIR MILES WEST OF
CLEARWATER RIVER.

Occurrence number: 029 Sitename: LOST HORSE SPUR ROAD
COUNTY: MISSOULA
Latitude: 470249 Longitude: 1132803 Elevation: 4660
Township & Range: 015N015W Section: 22 Subsection: E2NE4,23W2NW4
USGS Quad: SALMON LAKE
Size: 7.5 minute series
Year of initial discovery: 1986 Date of most recent observation: 1986-07-31
Directions: ALONG CHAMPION INTERNATIONAL LOGGING ROAD, 0.8 AIR MILES
SOUTH OF LOST HORSE CREEK, 3.2 AIR MILES WEST OF ELBOW LAKE/
CLEARWATER RIVER.

Occurrence number: 030 Sitename: LOST HORSE-BLANCHARD ROAD
COUNTY: MISSOULA
Latitude: 47°14'8" Longitude: 113°25'33" Elevation: 4120'
Township & Range: 015N014W Section: 30 Subsection: NW4
USGS Quad: SALMON LAKE
Size: 7.5 minute series
Year of initial discovery: 1986 Date of most recent observation: 1986-07-31
Directions: ALONG CHAMPION INTERNATIONAL LOGGING ROAD BETWEEN LOST HORSE
CREEK AND BLANCHARD CREEK, 0.8-1.0 AIR MILES NORTH OF NORTH
FORK BLANCHARD CREEK; 1.25 MILES WEST OF CLEARWATER ROAD.

Occurrence number: 031 Sitename: BLANCHARD UPLANDS
COUNTY: MISSOULA
Latitude: 470326 Longitude: 1132004 Elevation: 4600
Township & Range: 015N014W Section: 14 Subsection: 12,13,15
USGS Quad: WOODWORTH
Size: 7.5 minute series
Year of initial discovery: 1986 Date of most recent observation: 1986-07-31
Directions: BLACKFOOT-CLEARWATER WILDLIFE MANAGEMENT AREA, ALONG AND
NORTH OF GRAVEL ROAD FROM ST. HWY 93 TO FISH AND GAME
HEADQUARTERS, 2.5-3.5 MILES NORTH OF ST. HWY 200.

Table 1. Populations Currently Known Extant

Occurrence number: 044	Site name: CLEARWATER BACKROAD
COUNTY: MISSOULA	
Latitude: 470147	Longitude: 1132451 Elevation: 4020
Township & Range: 015N014W	Section: 30 Subsection: N2NE4
USGS Quad: SALMON LAKE	
Size: 7.5 minute series	
Year of initial discovery: 1986	Date of most recent observation: 1986-08-05
Directions: CA. 0.8 AIR MILES WEST OF CLEARWATER RIVER, CA. 0.25 AIR MILES WEST OF LOLO N.F. ROAD 4336 ON OLD LOGGING TRAIL, CA. 3 MILES NNW. OF ST. HWY. 200.	
Occurrence number: 046	Site name: LOWER COTTONWOOD ROAD
COUNTY: MISSOULA	
Latitude: 470857	Longitude: 1131853 Elevation: 4611
Township & Range: 016N014W	Section: 13 Subsection: NE4NW4
USGS Quad: MORRELL MOUNTAIN	
Size: 7.5 minute series	
Year of initial discovery: 1986	Date of most recent observation: 1986-08-21
Directions: NEAR COTTONWOOD CREEK, AT JCT. OF LOLO N.F. ROAD 477 AND ROAD SOUTH TO COZY CORNERS (LOWER COTTONWOOD RD), CA. 7.5 AIR MILES ESE. OF SEELEY LAKE (TOWN).	
Occurrence number: 047	Site name: COZY CORNERS
COUNTY: MISSOULA	
Latitude: 470653	Longitude: 1131927 Elevation: 4280
Township & Range: 016N014W	Section: 26 Subsection: SE4NE4
USGS Quad: WOODWORTH	
Size: 7.5 minute series	
Year of initial discovery: 1986	Date of most recent observation: 1986-08-21
Directions: WEST SIDE OF LOWER COTTONWOOD ROAD, 0.5 MILES NORTH OF COZY CORNERS, 1 MILE WEST OF MISSOULA-POWELL COUNTY LINE.	
Occurrence number: 048	Site name: SPRING CREEK ROAD
COUNTY: MISSOULA	
Latitude: 470745	Longitude: 1131841 Elevation: 4400
Township & Range: 016N014W	Section: 24 Subsection: SW4NE4
USGS Quad: MORRELL MOUNTAIN	
Size: 7.5 minute series	
Year of initial discovery: 1986	Date of most recent observation: 1986-08-21
Directions: WEST SIDE OF LOWER COTTONWOOD ROAD, JUST NORTH OF SPRING CREEK ROAD, 0.44 AIR MILES WEST OF MISSOULA-POWELL COUNTY LINE.	

Table 1. Populations Currently Known Extant

Occurrence number: 053	Site name: GREENOUGH SCHOOL PASTURE
COUNTY: MISSOULA	
Latitude: 465453 Longitude: 1132538	Elevation: 3760
Township & Range: 013N014W Section: 06	Subsection: NW4NW4;T13NR5W:1NE4
USGS Quad: GREENOUGH	
Size: 7.5 minute series	
Year of initial discovery: 1986	Date of most recent observation: 1986-08-16
Directions: GREENOUGH, 0.4 AIR MILES ESE. OF TOWNSITE, 0.45 AIR MILES EAST OF ST. HWY. 200, 0.1 AIR MILES SOUTH OF SUNSET SCHOOL.	
Occurrence number: 054	Site name: LITTLE FISH CREEK
COUNTY: MISSOULA	
Latitude: 465622 Longitude: 1132243	Elevation: 3820
Township & Range: 014N014W Section: 28	Subsection: W2
USGS Quad: GREENOUGH	
Size: 7.5 minute series	
Year of initial discovery: 1986	Date of most recent observation: 1986-08-16
Directions: ALONG LITTLE FISH CREEK, 0.3 AIR MILES EAST OF BLACKFOOT RIVER, CA. 1.5 MILES NE. OF SUNSET HILL, CA. 3 AIR MILES NE. OF GREENOUGH.	
Occurrence number: 055	Site name: GREENOUGH
COUNTY: MISSOULA	
Latitude: 465457 Longitude: 1132608	Elevation: 3780
Township & Range: 013N015W Section: 01	Subsection: NW4NE4
USGS Quad: GREENOUGH	
Size: 7.5 minute series	
Year of initial discovery: 1986	Date of most recent observation: 1986-08-18
Directions: GREENOUGH (TOWNSITE), 0.1 AIR MILES EAST OF ST. HWY. 200.	
Occurrence number: 002	Site name: MONTURE CREEK
COUNTY: POWELL	
Latitude: 470258 Longitude: 1131146	Elevation: 4080
Township & Range: 015N013W Section: 13	Subsection: SW4,14SE4,23NE4,24NW
USGS Quad: OVANDO	
Size: 7.5 minute series	
Year of initial discovery: 1976	Date of most recent observation: 1986-08-05
Directions: FROM OVANDO, WEST ON HWY. 200 FOR 3 MI., TO DIRT ROAD ABOUT 0.3 MI. WEST OF BRIDGE OVER MONTURE CREEK; SITE IS ALONG ROAD 0.4 MI. NORTH OF HWY.	

Table 1. Populations Currently Known Extant

Occurrence number: 012	Site name: JONES LAKE
COUNTY: POWELL	
Latitude: 470321 Longitude: 1130714	Elevation: 4260
Township & Range: 015N012W Section: 16	Subsection: NW4SE4
USGS Quad: OVANDO MOUNTAIN	
Size: 7.5 minute series	
Year of initial discovery: 1976	Date of most recent observation: 1986-07-25
Directions: ALONG GRAVEL ROAD CA. 2.5 AIR MI. N. OF OVANDO, CA. 1.5 AIR MI. W. OF MARTIN PARK, 2 AIR MI. SSW. OF MOLLET PARK.	
Occurrence number: 013	Site name: SPRING CREEK
COUNTY: POWELL	
Latitude: 470237 Longitude: 1130016	Elevation: 4260
Township & Range: 015N011W Section: 21	Subsection: SW4NW4
USGS Quad: OVANDO MOUNTAIN	
Size: 7.5 minute series	
Year of initial discovery: 1976	Date of most recent observation: 1986-08-02
Directions: ON GRAVEL ROAD 0.9 AIR MI. ESE. OF E. END OF DONEY LAKE, WHERE RD. CROSSES SPRING CREEK, CA. 6 AIR MILES NE. OF OVANDO.	
Occurrence number: 018	Site name: DICK CREEK
COUNTY: POWELL	
Latitude: 470327 Longitude: 1130651	Elevation: 4310
Township & Range: 015N012W Section: 16	Subsection: SE4SE4
USGS Quad: OVANDO MOUNTAIN	
Size: 7.5 minute series	
Year of initial discovery: 1986	Date of most recent observation: 1986-07-25
Directions: BRIDGE OVER DICK CREEK, ALONG CHAMPION INT'L ROAD CA. 2.6 AIR MILES NNE OF OVANDO, CA. 1 AIR MILE WEST OF MARTIN PARK.	
Occurrence number: 019	Site name: OVANDO-CHAMPION
COUNTY: POWELL	
Latitude: 470252 Longitude: 1130603	Elevation: 4380
Township & Range: 015N012W Section: 22	Subsection: N2N2
USGS Quad: OVANDO MOUNTAIN	
Size: 7.5 minute series	
Year of initial discovery: 1986	Date of most recent observation: 1986-07-25
Directions: ALONG CHAMPION INTERNATIONAL LOGGING RD., CA. 2 AIR MILES NE OF OVANDO, 0.5 AIR MILES SW OF MARTIN PARK.	

Table 1. Populations Currently Known Extant

Occurrence number: 020 Sitename: MOLLET PARK
 COUNTY: POWELL
 Latitude: 470503 Longitude: 1130626 Elevation: 4585
 Township & Range: 015N012W Section: 03 Subsection: S2NW4,N2SW4
 USGS Quad: OVANDO MOUNTAIN
 Size: 7.5 minute series
 Year of initial discovery: 1986 Date of most recent observation: 1986-07-26
 Directions: MOLLET PARK, CA. 4.5 AIR MI. NNE. OF OVANDO, CA. 3 AIR MI.
 WSW. OF OVANDO MOUNTAIN.

Occurrence number: 021 Sitename: MOLLET PARK SOUTH
 COUNTY: POWELL
 Latitude: 470438 Longitude: 1130553 Elevation: 4570
 Township & Range: 015N012W Section: 10 Subsection: N2NE4
 USGS Quad: OVANDO MOUNTAIN
 Size: 7.5 minute series
 Year of initial discovery: 1986 Date of most recent observation: 1986-07-26
 Directions: ALONG LOGGING ROADS AT THE SE. END OF MOLLET PARK, CA. 4 AIR
 MI. NNE. OF OVANDO, CA. 2.7 AIR MI. WSW. OF OVANDO MOUNTAIN.

Occurrence number: 022 Sitename: MARTIN PARK
 COUNTY: POWELL
 Latitude: 470313 Longitude: 1130526 Elevation: 4460
 Township & Range: 015N012W Section: 14 Subsection: SW4;15E2SE4
 USGS Quad: OVANDO MOUNTAIN
 Size: 7.5 minute series
 Year of initial discovery: 1986 Date of most recent observation: 1986-08-02
 Directions: SW. EDGE OF MARTIN PARK, AND ALONG ROADS NEAR WARREN CREEK
 E. OF THE PARK, CA. 2.5 AIR MI. NE OF OVANDO.

Occurrence number: 023 Sitename: DONEY LAKE
 COUNTY: POWELL
 Latitude: 470252 Longitude: 1130132 Elevation: 4460
 Township & Range: 015N011W Section: 20 Subsection: NWNW4
 USGS Quad: OVANDO MOUNTAIN
 Size: 7.5 minute series
 Year of initial discovery: 1986 Date of most recent observation: 1986-07-26
 Directions: ALONG GRAVEL ROAD ON N. SIDE OF DONEY LAKE, CA. 1 AIR MILE
 NW. OF N. FORK OF THE BLACKFOOT RIVER, CA. 5 AIR MILES ENE.
 OF OVANDO.

Table 1. Populations Currently Known Extant

Occurrence number: 032	Site name: SPRING CREEK LAKE
COUNTY: POWELL	
Latitude: 470314 Longitude: 1125943	Elevation: 4520
Township & Range: 015N011W Section: 16	Subsection: CENTER
USGS Quad: COOPERS LAKE	
Size: 7.5 minute series	
Year of initial discovery: 1986	Date of most recent observation: 1986-08-02
Directions: ADJACENT TO UNNAMED LAKE JUST EAST OF SPRING CREEK LAKE, 0.7 AND 1.0 AIR MILES NORTH OF NORTH FORK OF THE BLACKFOOT RIVER, NEAR NW. EDGE OF KLEINSCHMIDT FLAT.	
Occurrence number: 033	Site name: DICK CREEK EAST
COUNTY: POWELL	
Latitude: 470318 Longitude: 1130622	Elevation: 4360
Township & Range: 015N012W Section: 15	Subsection: N2SW4
USGS Quad: OVANDO MOUNTAIN	
Size: 7.5 minute series	
Year of initial discovery: 1986	Date of most recent observation: 1986-08-03
Directions: ALONG CHAMPION INTERNATIONAL LOGGING ROAD, CA. 2.5 AIR MILES NNE. OF OVANDO, CA. 0.75 MILES WEST OF MARTIN PARK; SIDE ROAD NOT SHOWN ON TOPO MAP.	
Occurrence number: 034	Site name: FEARSON CREEK
COUNTY: POWELL	
Latitude: 465941 Longitude: 1131203	Elevation: 4270
Township & Range: 014N013W Section: 02	Subsection: S2SE4, SE4SW4
USGS Quad: CHAMBERLAIN MOUNTAIN	
Size: 7.5 minute series	
Year of initial discovery: 1986	Date of most recent observation: 1986-08-03
Directions: SOUTH OF THE BLACKFOOT RIVER, 0.3-0.65 AIR MILES NE. OF PEARSON CREEK, CA. 2.5 AIR MILES SE. OF SCOTTY BROWN BRIDGE.	
Occurrence number: 035	Site name: BLACKFOOT ROADSIDE
COUNTY: POWELL	
Latitude: 465808 Longitude: 1130832	Elevation: 4200
Township & Range: 014N012W Section: 17	Subsection: NW4SE4
USGS Quad: CHAMBERLAIN MOUNTAIN	
Size: 7.5 minute series	
Year of initial discovery: 1986	Date of most recent observation: 1986-08-03
Directions: ALONG LOGGING ROAD ON SLOPE ABOVE (SW. OF) THE BLACKFOOT RIVER, 1.27 AIR MILES SSW. OF ITS CONFLUENCE WITH NORTH FORK OF THE BLACKFOOT RIVER.	

Table 1. Populations Currently Known Extant

Occurrence number: 036 Sitename: BLACKFOOT ROADSIDE II
 COUNTY: POWELL
 Latitude: 465902 Longitude: 1131020 Elevation: 4260
 Township & Range: 014N012W Section: 07 Subsection: SW4NW4
 USGS Quad: CHAMBERLAIN MOUNTAIN
 Size: 7.5 minute series
 Year of initial discovery: 1986 Date of most recent observation: 1986-08-03
 Directions: 0.63 AIR MILES SOUTH OF THE BLACKFOOT RIVER, 2.08 AIR MILES
 WEST OF ITS CONFLUENCE WITH NORTH FORK BLACKFOOT RIVER, CA.
 4 AIR MILES SOUTHEAST OF THE SCOTTY BROWN BRIDGE.

Occurrence number: 038 Sitename: UPSATA LAKE
 COUNTY: POWELL
 Latitude: 470422 Longitude: 1131349 Elevation: 4120
 Township & Range: 015N013W Section: 10 Subsection: SE4NW4, SW4NE4
 USGS Quad: OVANDO
 Size: 7.5 minute series
 Year of initial discovery: 1986 Date of most recent observation: 1986-08-04
 Directions: CA. 0.1 AIR MILES SW. OF SW. END OF UPSATA LAKE ("OPSATA" ON
 USGS MAP), ALONG GRAVEL ROAD N. AND E. OF BLACKFOOT-
 CLEARWATER WILDLIFE MANAGEMENT AREA HEADQUARTERS.

Occurrence number: 039 Sitename: UPSATA-WOODWORTH JUNCTION
 COUNTY: POWELL
 Latitude: 470415 Longitude: 1131508 Elevation: 4120
 Township & Range: 015N013W Section: 09 Subsection: CENTER, NE4
 USGS Quad: WOODWORTH, OVANDO
 Size: 7.5 minute series
 Year of initial discovery: 1986 Date of most recent observation: 1986-08-04
 Directions: ALONG GRAVEL ROAD TO UPSATA LAKE, 2.7-3.2 AIR MILES NORTH OF
 ST. HWY. 200, CA. 1.6-2.1 RD. MILES NORTH AND EAST OF JCT.
 W/ BLACKFOOT-CLEARWATER WILDLIFE MANAGEMENT AREA HQ ROAD.

Occurrence number: 040 Sitename: COTTONWOOD CREEK
 COUNTY: POWELL
 Latitude: 470338 Longitude: 1131542 Elevation: 4040
 Township & Range: 015N013W Section: 17 Subsection: E2NE4, NE4SE4, 16W2SW4
 USGS Quad: WOODWORTH
 Size: 7.5 minute series
 Year of initial discovery: 1986 Date of most recent observation: 1986-08-04
 Directions: ALONG GRAVEL ROAD TO UPSATA LAKE, 0.1-0.6 AIR MILES EAST OF
 COTTONWOOD CREEK, CENTERED CA. 0.75 AIR MILES NE. OF BLACK-
 FOOT-CLEARWATER WILDLIFE MANAGEMENT AREA HEADQUARTERS.

Table 1. Populations Currently Known Extant

Occurrence number: 041	Site name: BLACKFOOT BACKROADS
COUNTY: POWELL	
Latitude: 470421 Longitude: 1131735	Elevation: 4120
Township & Range: 015N013W Section: 07	Subsection: NW4, CENTER
USGS Quad: WOODWORTH	
Size: 7.5 minute series	
Year of initial discovery: 1986	Date of most recent observation: 1986-08-04
Directions: ALONG AND NEAR OLD LOGGING TRAILS, CA. 1.5-2.0 AIR MILES NW. OF BLACKFOOT-CLEARWATER WILDLIFE MANAGEMENT AREA HEADQUARTERS, CA. 2.5 MILES SOUTH OF WOODWORTH.	

Occurrence number: 042	Site name: WOODWORTH
COUNTY: POWELL	
Latitude: 470540 Longitude: 1131543	Elevation: 4180
Township & Range: 016N013W Section: 32	Subsection: E2SE4, 33SW4SW4
USGS Quad: WOODWORTH	
Size: 7.5 minute series	
Year of initial discovery: 1986	Date of most recent observation: 1986-08-05
Directions: ALONG WEST SIDE OF GRAVEL ROAD, CA. 2.1 AIR MILES ESE. OF WOODWORTH, CA. 3 AIR MILES NORTH OF BLACKFOOT-CLEARWATER WILDLIFE MANAGEMENT AREA HEADQUARTERS.	

Occurrence number: 043	Site name: MONTURE CREEK ACCESS
COUNTY: POWELL	
Latitude: 470221 Longitude: 1131314	Elevation: 4020
Township & Range: 015N013W Section: 22	Subsection: E2SE4
USGS Quad: OVAND0	
Size: 7.5 minute series	
Year of initial discovery: 1986	Date of most recent observation: 1986-08-05
Directions: MONTURE CREEK FISHING ACCESS SITE, SOUTH SIDE OF ST. HWY. 200 CA. 4.5 MILES WEST OF OVAND0.	

Occurrence number: 045	Site name: SHANLEY CREEK
COUNTY: POWELL	
Latitude: 470652 Longitude: 1131256	Elevation: 4000
Township & Range: 016N013W Section: 26	Subsection: SW4NW4, 27NE4
USGS Quad: OVAND0	
Size: 7.5 minute series	
Year of initial discovery: 1986	Date of most recent observation: 1986-08-21
Directions: ALONG CHAMPION INTERNATIONAL LOGGING ROADS, CA. 1/2 MILE SOUTH OF LOLO N.F. RD. 477, CA. 3.5 AIR MILES WSW. OF MONTURE CREEK CAMPGROUND, ADJACENT TO SHANLEY CREEK.	

Table 1. Populations Currently Known Extant

Occurrence number: 037 Sitename: CHAMPION GAME RANGE ROAD
 COUNTY: POWELL
 & MISSOULA
 Latitude: 47°15'9" Longitude: 113°17'47" Elevation: 4280
 Township & Range: 015N013W Section: 30 Subsection: NW4;T15NR14W:25NE4NE
 USGS Quad: WOODWORTH
 Size: 7.5 minute series
 Year of initial discovery: 1986 Date of most recent observation: 1986-08-04
 Directions: ALONG CHAMPION INTERNATIONAL LOGGING ROADS, 0.8 AIR MILES
 NORTH OF BLACKFOOT RIVER, CA. 4 AIR MILES ENE. OF CLEARWATER
 JUNCTION.

Table 2. Populations Known or Assumed Extirpated

Occurrence number: 003	Sitename: BLANCHARD LAKE
COUNTY: MISSOULA	
Latitude: 470111 Longitude: 1132325	Elevation: 3800
Township & Range: 015N014W Section: 29	Subsection: SE4
USGS Quad: SALMON LAKE	
Size: 7.5 minute series	
Year of initial discovery: 1971	Date of most recent observation: 1982-
Directions: CLEARWATER RIVER, 0.3 MI. W. OF BLANCHARD LAKE, 12.1 MI. SSE. OF SEELEY LAKE POST OFFICE.	
Occurrence number: 004	Sitename: SUNFLOWER MOUNTAIN
COUNTY: MISSOULA	
Latitude: 465619 Longitude: 1134226	Elevation: 4600
Township & Range: 014N017W Section: 14	Subsection: E2
USGS Quad: SUNFLOWER MOUNTAIN	
Size: 7.5 minute series	
Year of initial discovery: 1967	Date of most recent observation: 1967-07-18
Directions: JOCKO MOUNTAINS, GOLD CREEK WATERSHED, 2 MILES WEST OF SUNFLOWER MOUNTAIN, 9 MILES NW. OF POTOMAC; CORA ROAD 1 MI. FROM JCT. WITH MAIN GOLD CREEK ROAD.	
Occurrence number: 007	Sitename: MCNAMARA BRIDGE
COUNTY: MISSOULA	
Latitude: 465446 Longitude: 1133936	Elevation: 3500
Township & Range: 013N016W Section: 06	Subsection: SE4
USGS Quad: SUNFLOWER MOUNTAIN	
Size: 7.5 minute series	
Year of initial discovery: 1982	Date of most recent observation: 1982-08-14
Directions: HIGHWAY 200, A FEW HUNDRED FEET WEST OF THE DIAMOND MOUNTAIN ROAD AND ABOVE MCNAMARA'S LANDING, N. SIDE OF ROAD; ALSO BETWEEN MCNAMARA'S LANDING AND GREENOUGH.	
Occurrence number: 008	Sitename: POTOMAC
COUNTY: MISSOULA	
Latitude: 465254 Longitude: 1133048	Elevation: 3860
Township & Range: 013N015W Section: 16	Subsection: BORDER OF 16&17,18+
USGS Quad: POTOMAC	
Size: 7.5 minute series	
Year of initial discovery: 1982	Date of most recent observation: 1983-
Directions: ALSO T13NR16W:13,14; HIGHWAY 200, W. OF GREENOUGH, 1 MI. E. OF UPPER POTOMAC TURN-OFF, N. SIDE OF ROAD.	

Table 2. Populations Known or Assumed Extirpated

Occurrence number: 009	Site name: BLUE SLIDE
COUNTY: MISSOULA	
Latitude: 465322 Longitude: 1134953	Elevation: 3320
Township & Range: 013N018W Section: 14	Subsection: NE4
USGS Quad: BLUE POINT	
Size: 7.5 minute series	
Year of initial discovery: 1982	Date of most recent observation: 1983-
Directions: HIGHWAY 200 ON NORTH ROAD SHOULDER, BLUE SLIDE, BY GUARD RAIL.	
Occurrence number: 011	Site name: CLEARWATER ACCESS
COUNTY: MISSOULA	
Latitude: 470000 Longitude: 1132254	Elevation: 3820
Township & Range: 014N014W Section: 04	Subsection: NW4
USGS Quad: SALMON LAKE, GREENOUGH	
Size: 7.5 minute series	
Year of initial discovery: 1976	Date of most recent observation: 1976-07-21
Directions: FISHING ACCESS SITE ON THE CLEARWATER RIVER AT THE CROSSING OF MT. ST. HWY. 200.	
Occurrence number: 014	Site name: ANGEVINE
COUNTY: MISSOULA	
Latitude: 465405 Longitude: 1134513	Elevation: 3360
Township & Range: 013N017W Section: 09	Subsection: N2
USGS Quad: BLUE POINT	
Size: 7.5 minute series	
Year of initial discovery: 1984	Date of most recent observation: 1984-
Directions: ALONG ST. HWY. 200, CA. 0.2-0.7 MI. NE. OF ANGEVINE PARK PICNIC AREA, CA. 9 MI. W. OF POTOMAC.	
Occurrence number: 015	Site name: GREENOUGH ROADSIDE
COUNTY: MISSOULA	
Latitude: 465358 Longitude: 1132710	Elevation: 4000
Township & Range: 013N015W Section: 11	Subsection: E2, I2NW4
USGS Quad: GREENOUGH	
Size: 7.5 minute series	
Year of initial discovery: 1984	Date of most recent observation: 1984-
Directions: ALONG ST. HWY. 200 ADJACENT TO LUBRECHT CAMP (NORTH), CA. 1-2 MI. SSW. OF GREENOUGH.	

Table 2. Populations Known or Assumed Extirpated

Occurrence number: 016 Sitename: HOLLAND-PIERCE CREEK
COUNTY: MISSOULA
Latitude: 472453 Longitude: 1133911 Elevation: 4065
Township & Range: 019N016W Section: 09 Subsection: 4,5,8,16,21; +
USGS Quad: CYGNET LAKE
Size: 7.5 minute series
Year of initial discovery: 1984 Date of most recent observation: 1984-
Directions: ALSO T20NR16W: 32; ALONG ST. HWY. 83, FROM CA. 0.5 MI. S. OF
PIERCE CREEK, TO CA. 0.3 MI. N. OF HOLLAND CREEK, AND
HOLLAND CREEK, AND HOLLAND LAKE RD.CA.1.5 MI.E. FROM HWY.83.

Occurrence number: Ø17 Sitename: CONDON
COUNTY: MISSOULA
Latitude: 473Ø31 Longitude: 1134121 Elevation: 382Ø
Township & Range: Ø2ØNØ16W Section: Ø7 Subsection: S2NW4.6SW4
USGS Quad: CONDON
Size: 7.5 minute series
Year of initial discovery: 1984 Date of most recent observation: 1984-
Directions: ALONG ST. HWY. Ø3, CA. 1-2 MI. SE. OF CONDON.

OVANDO MOUNTAIN QUADRANGLE

T 16 N
T 15 N

5217

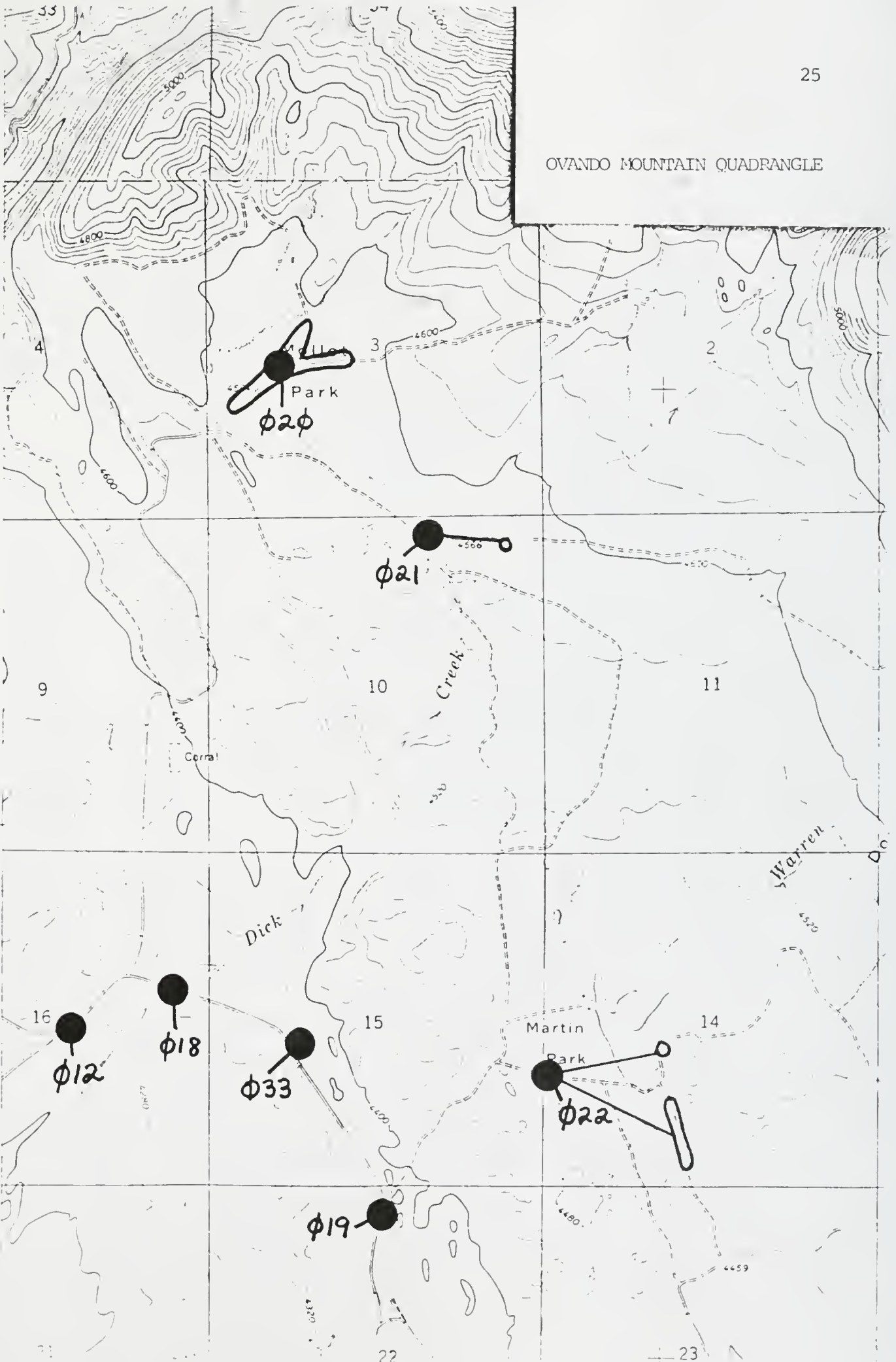
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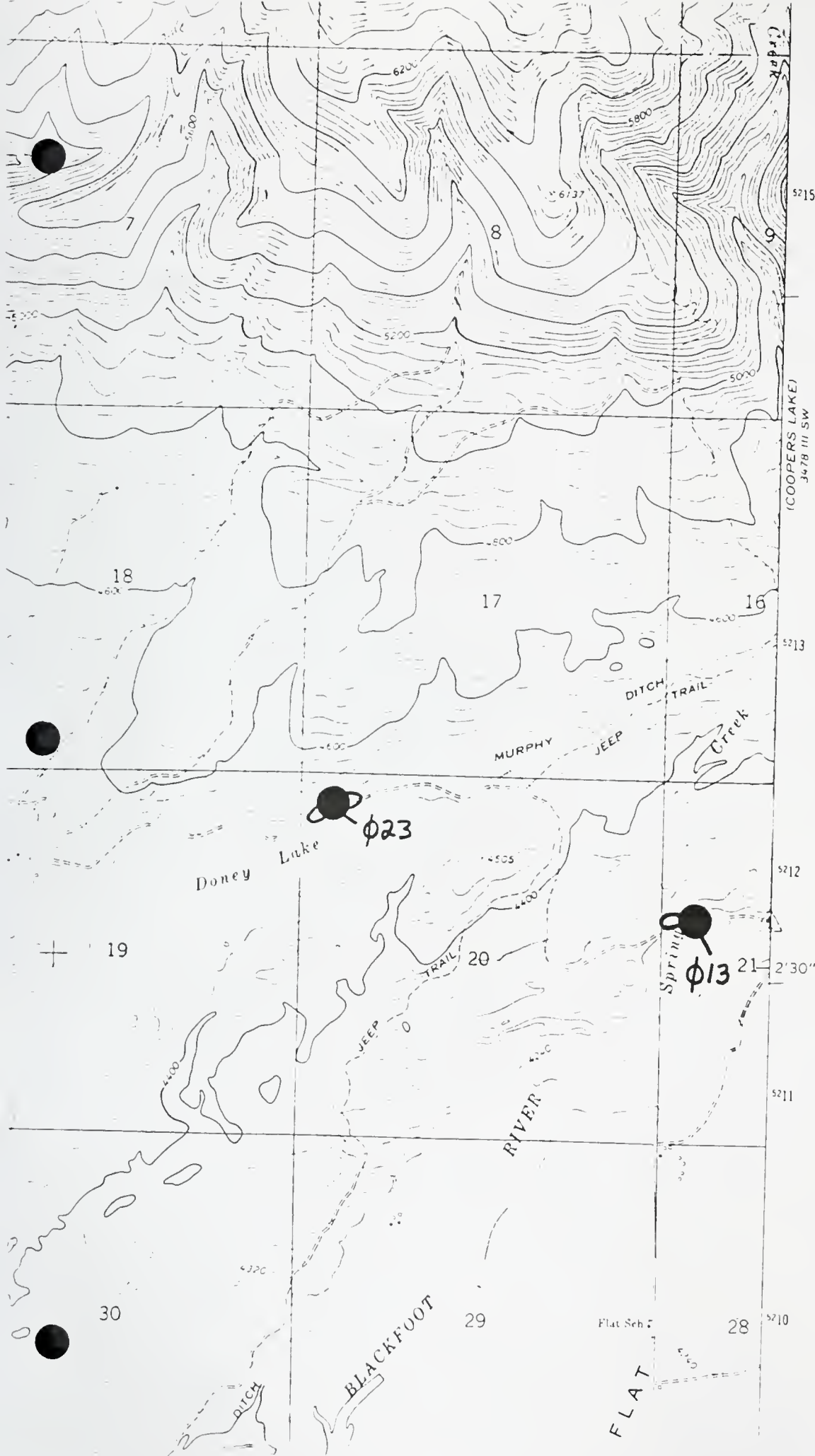
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(OVANDO)

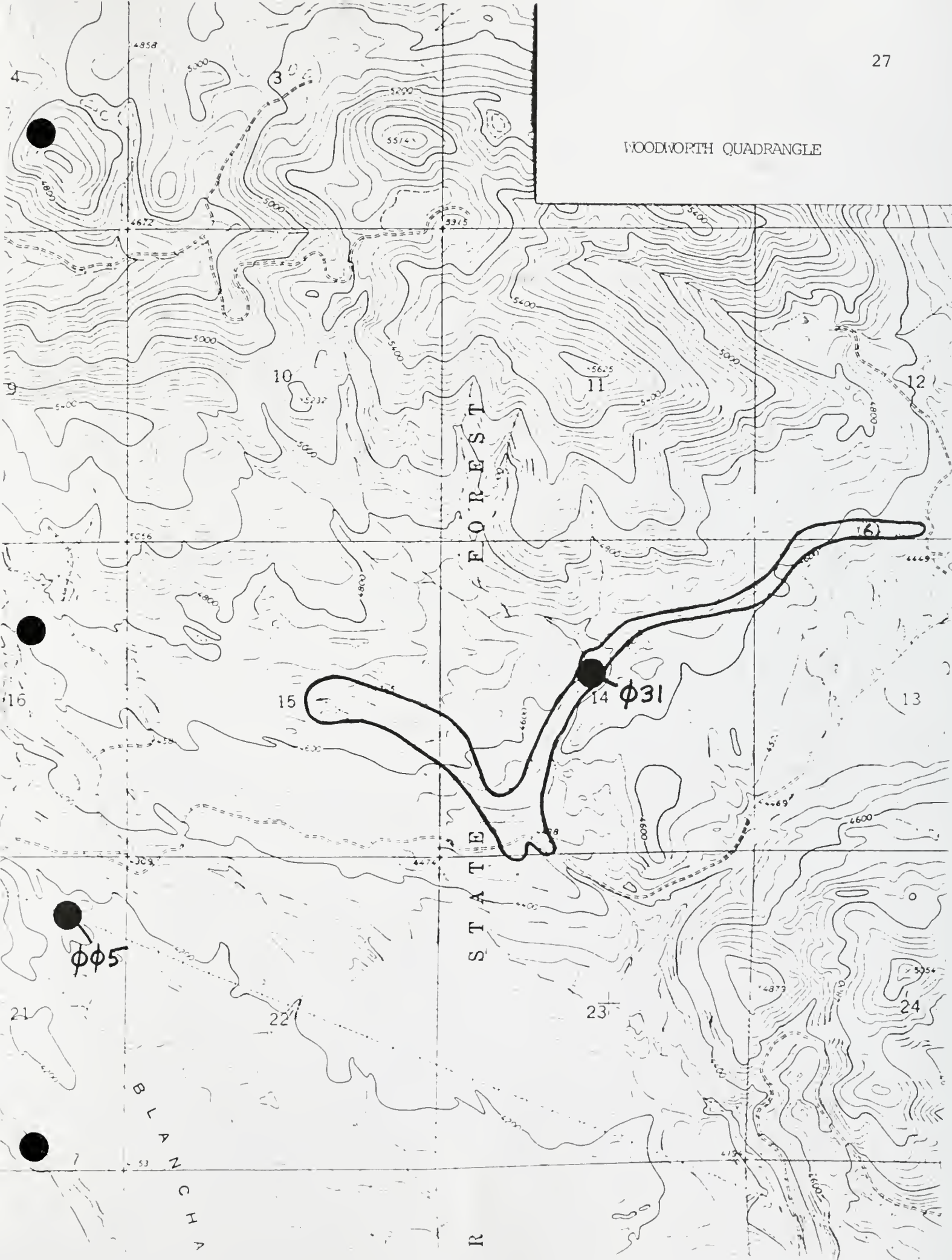
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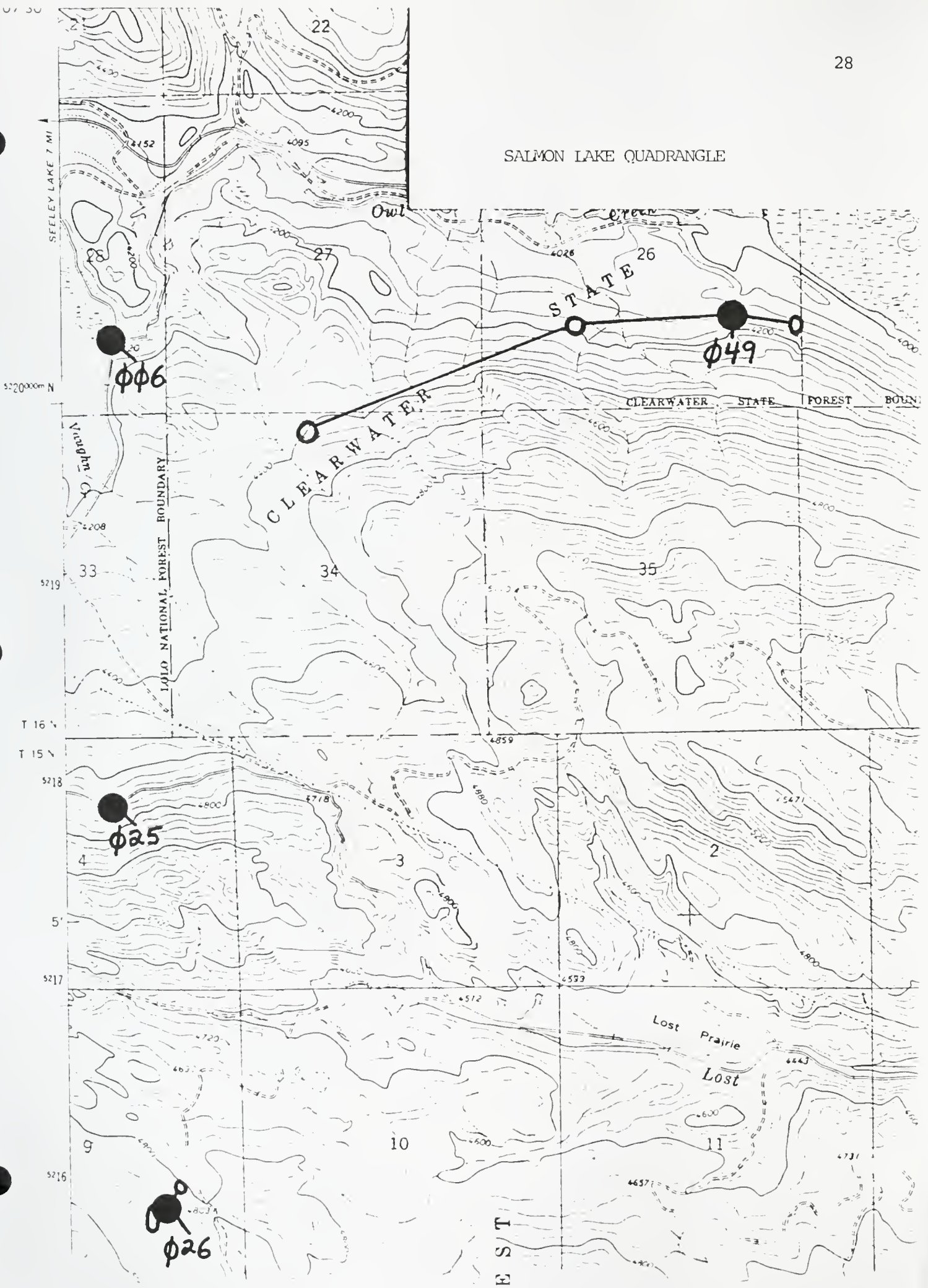


OVANDO MOUNTAIN
QUADRANGLE

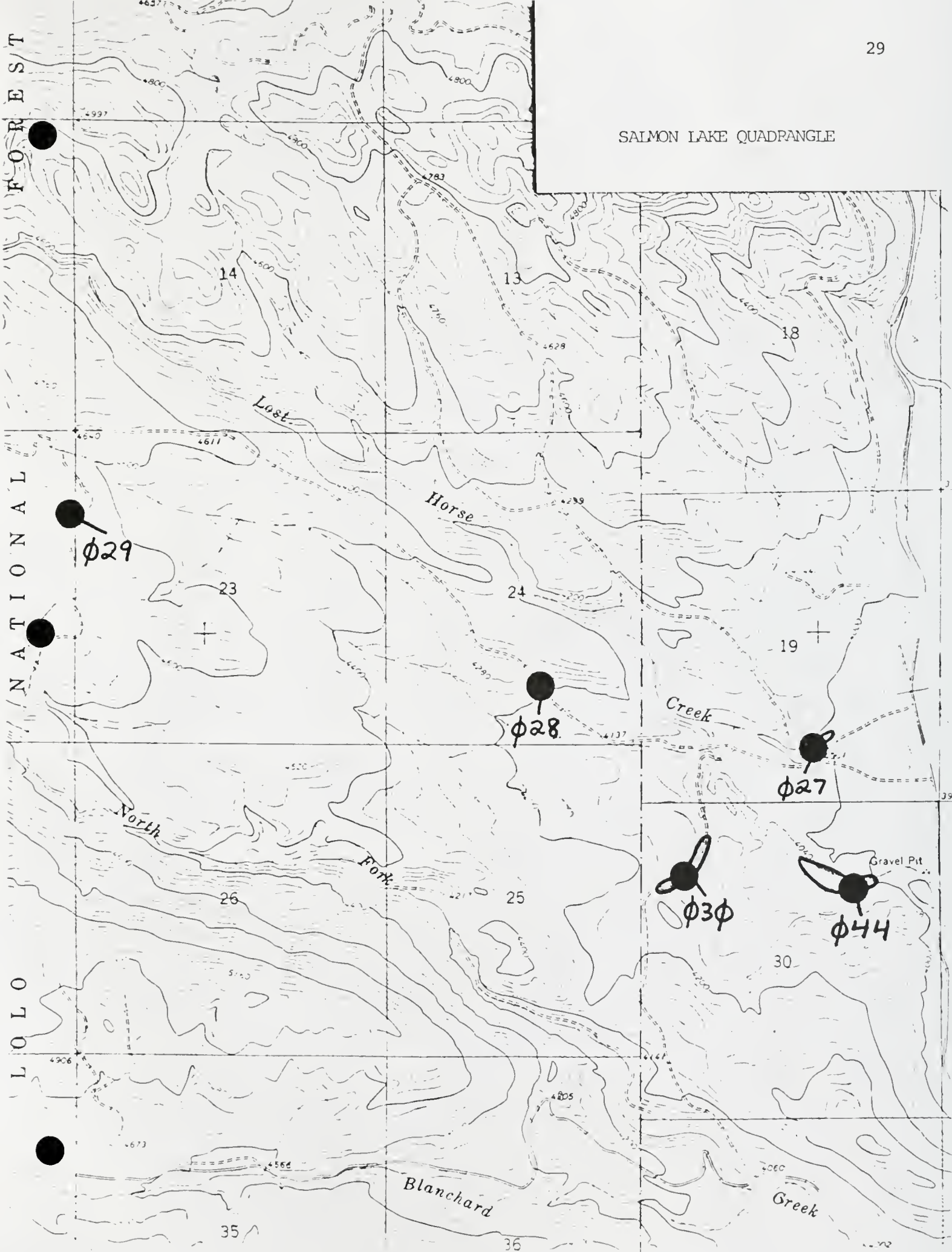




SALMON LAKE QUADRANGLE



SALMON LAKE QUADRANGLE

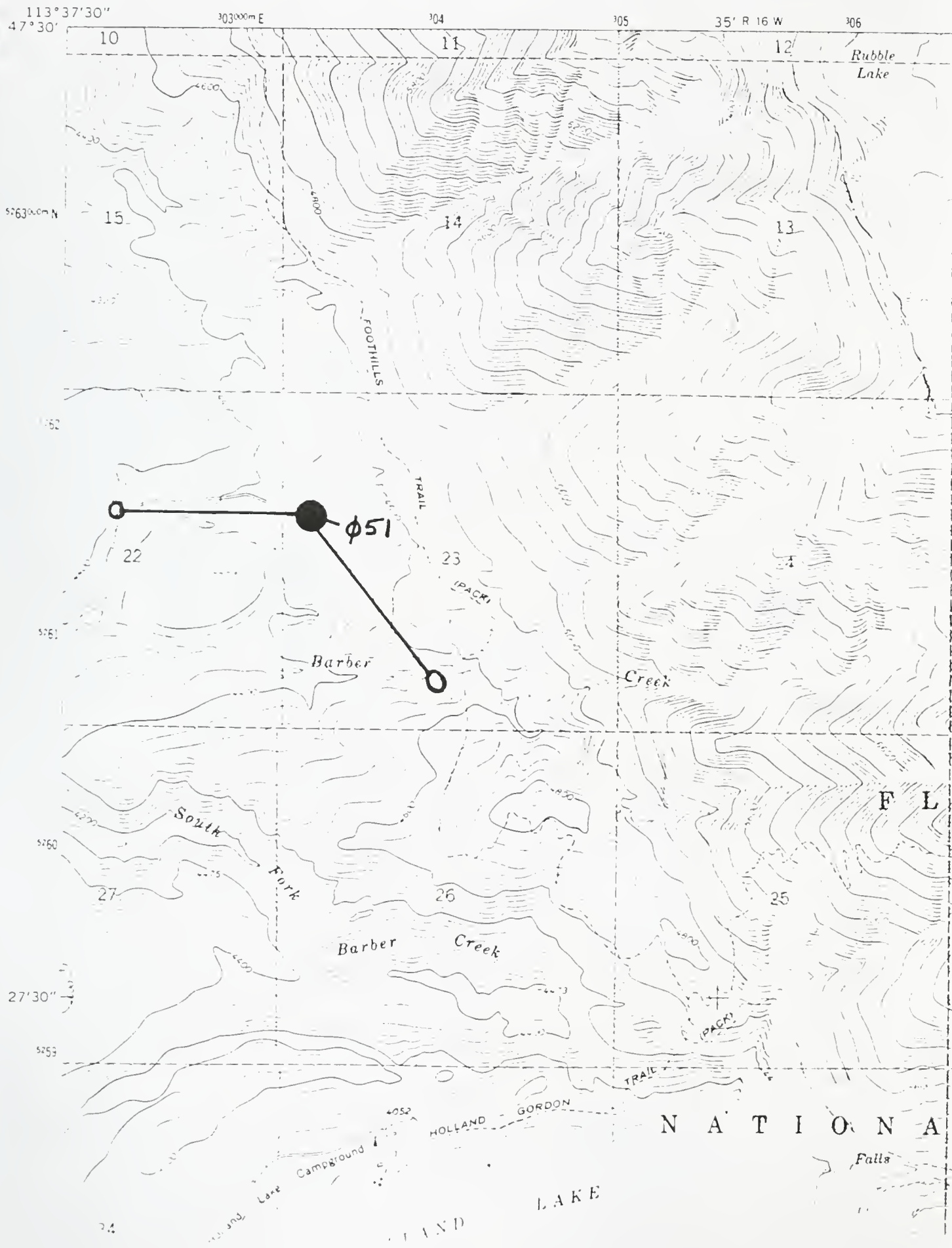


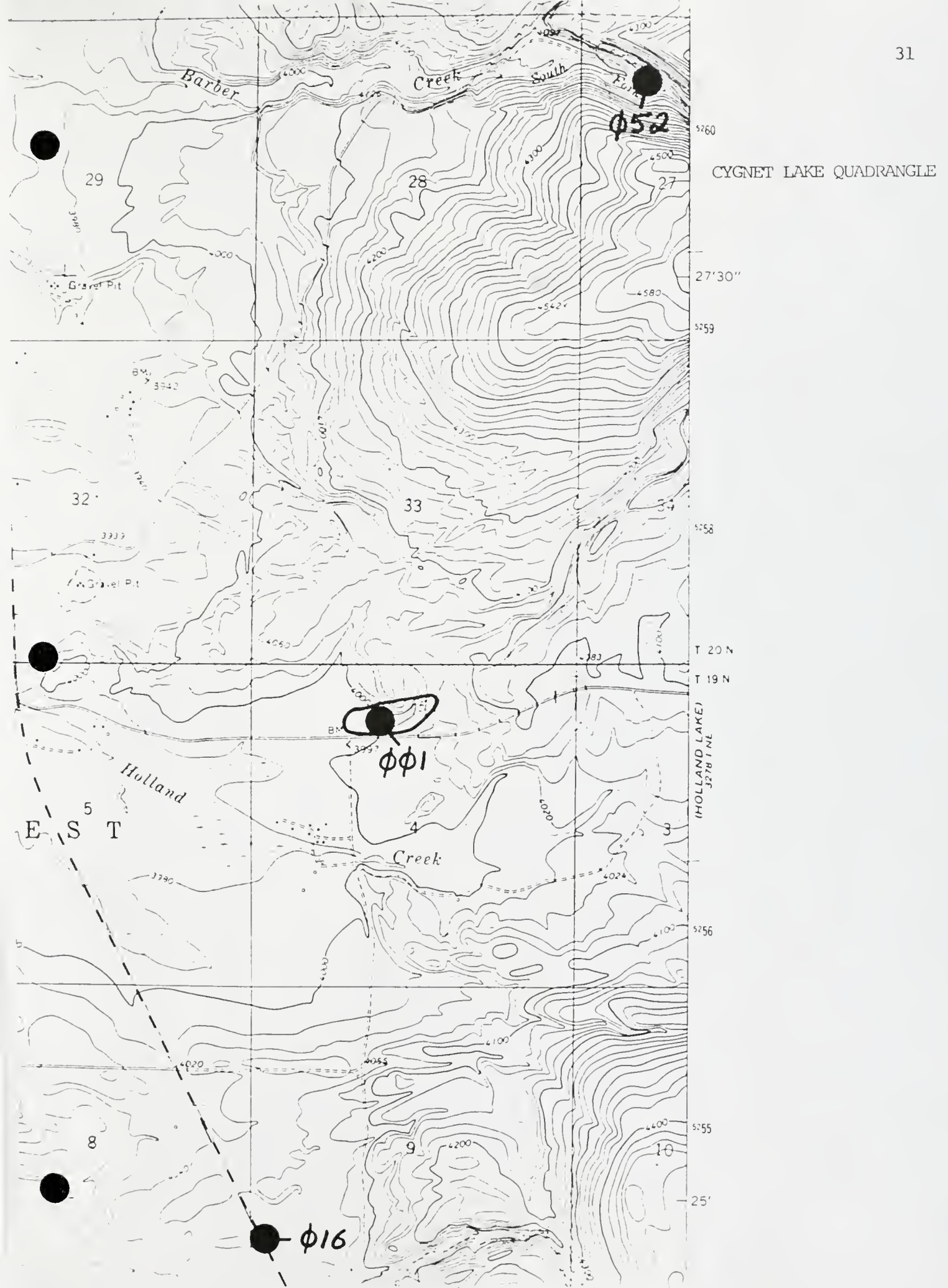
32° 11' SW
(CONDOM)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

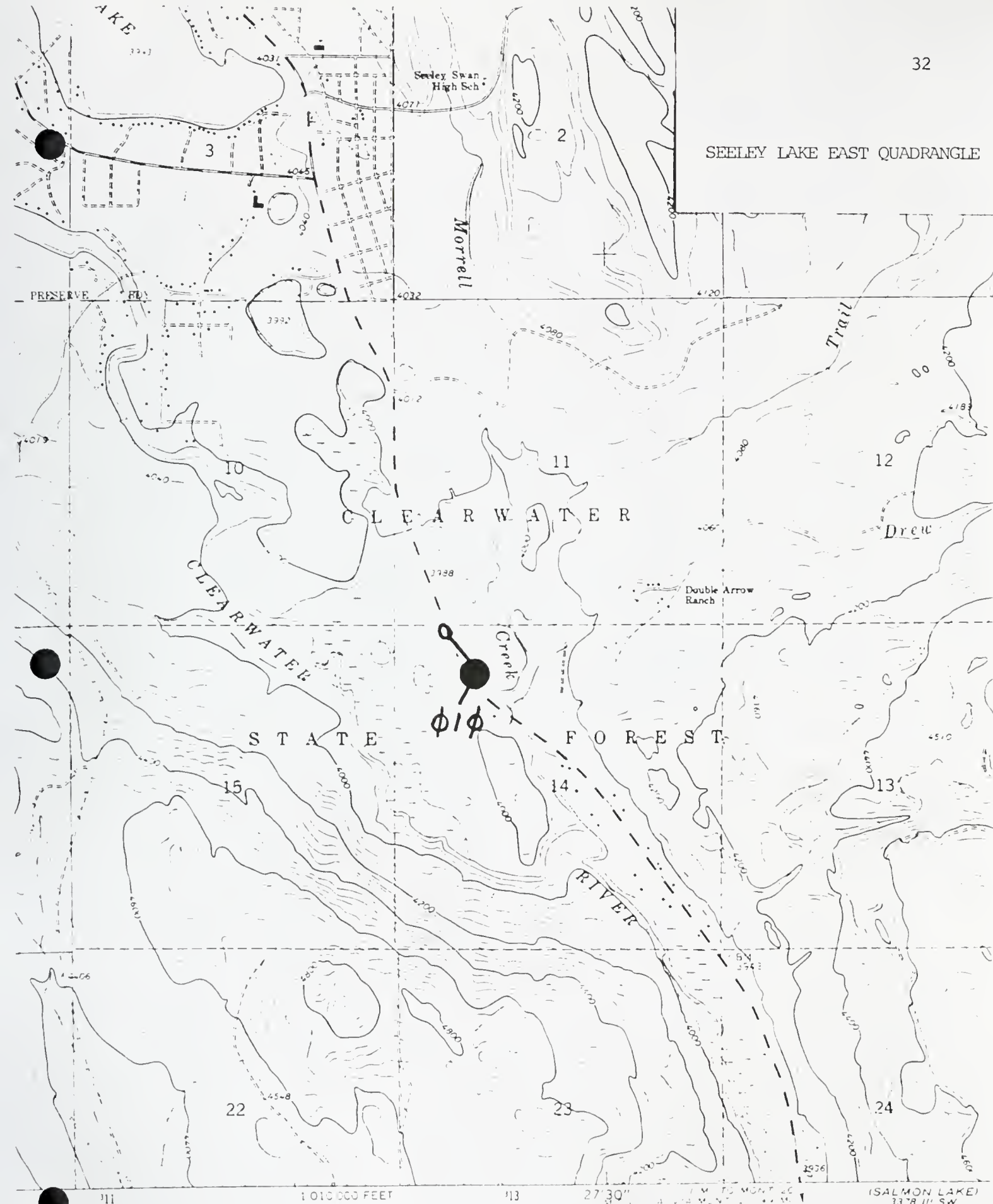
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HOLLAND LAKE QUADRANGLE





SEELEY LAKE EAST QUADRANGLE

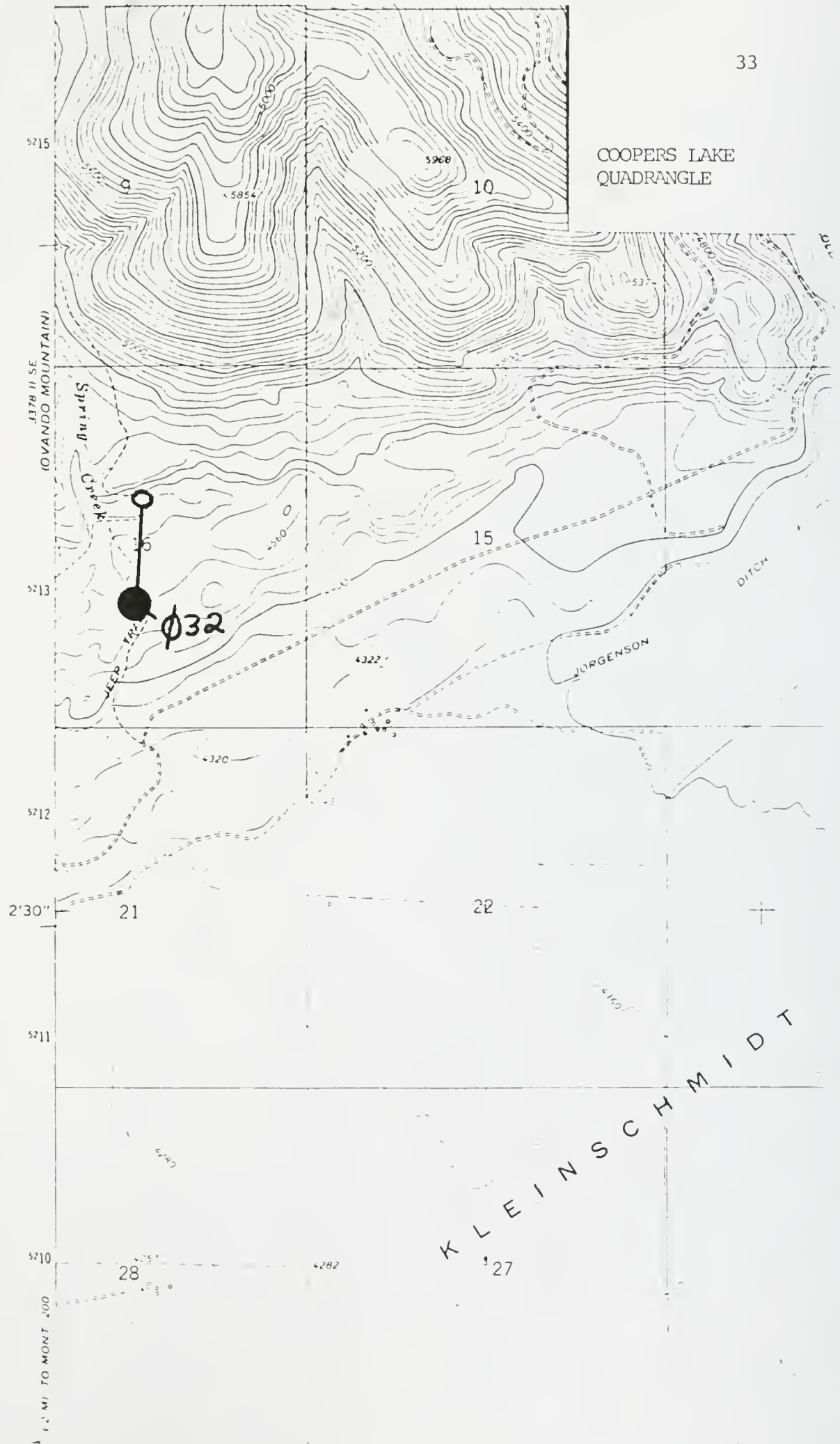


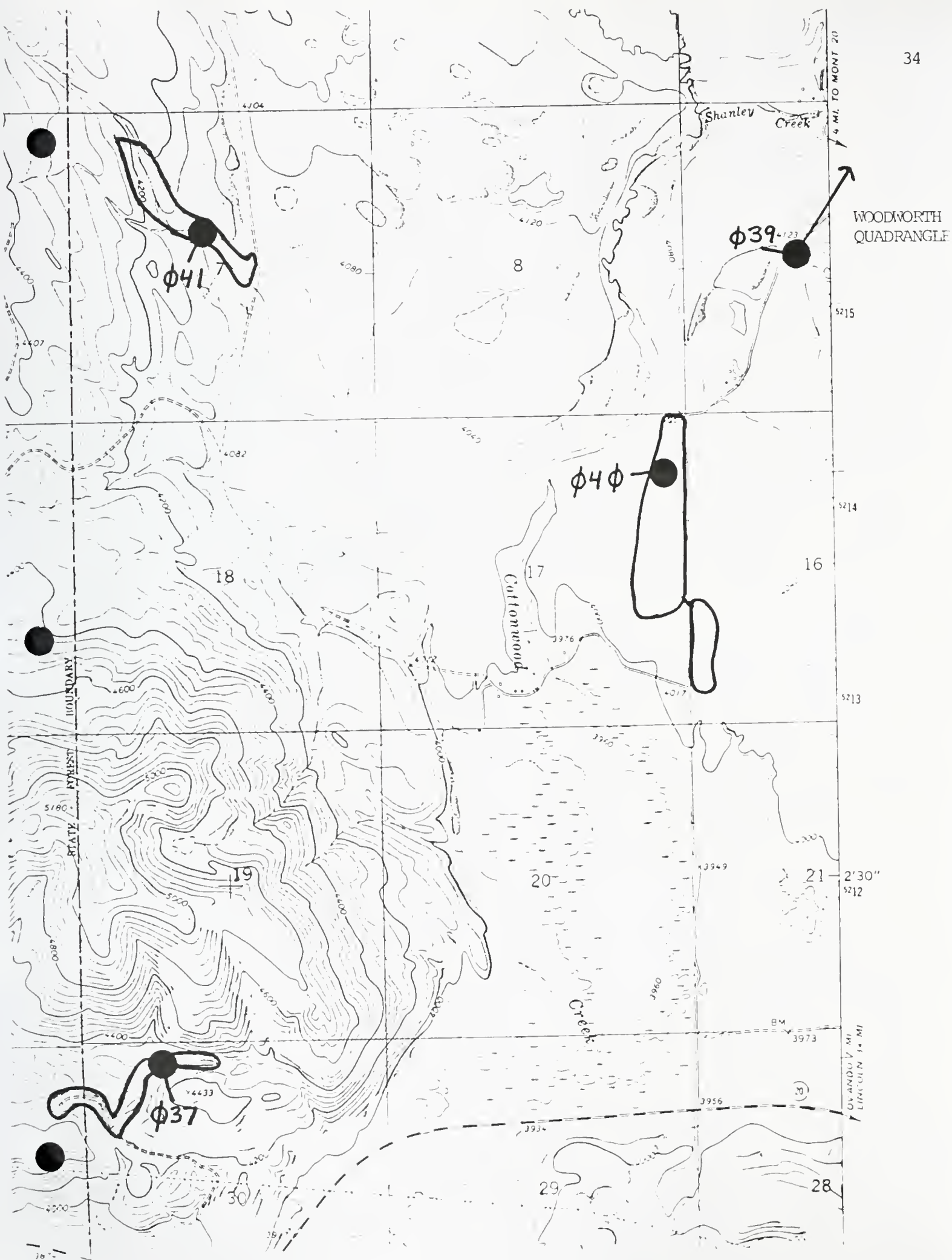
edited and published by the Geological Survey
by USGS and USFWS

copy by photogrammetric methods from aerial
photos taken 1964. Field check 1965

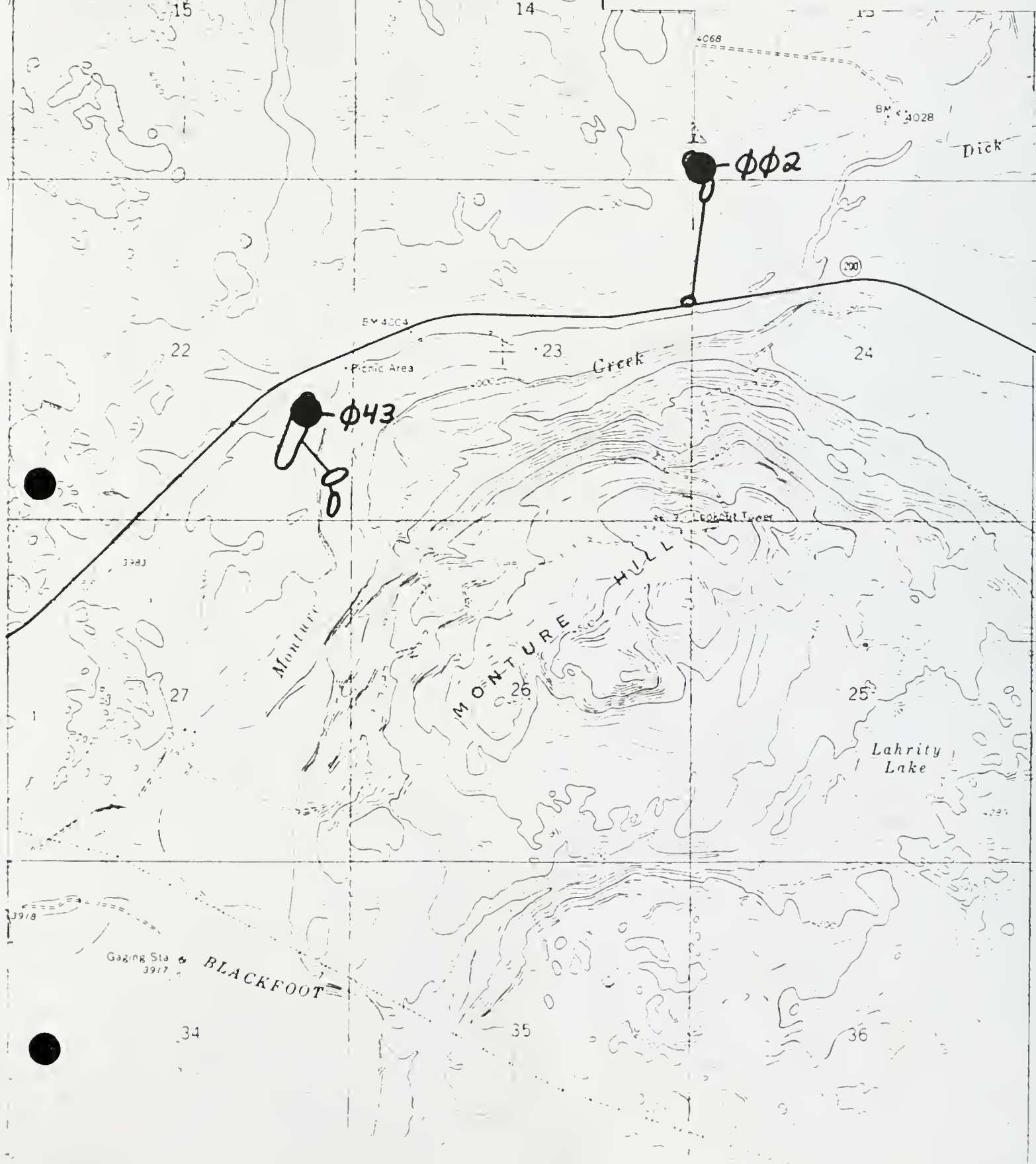
(SALMON LAKE)
33° 8' 11" SW
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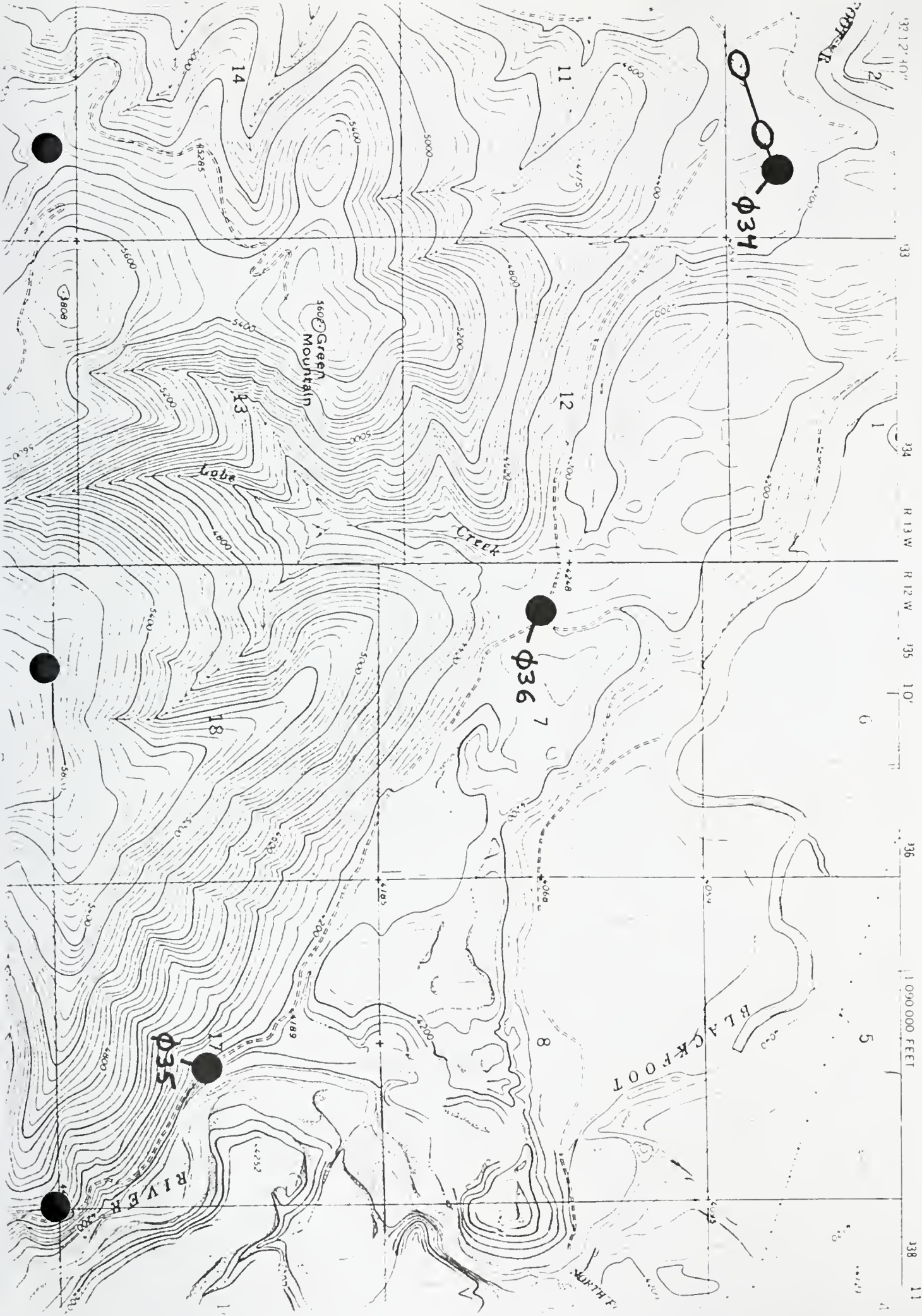
COOPERS LAKE
QUADRANGLE





OVANDO QUADRANGLE





CHAMBERLAIN MOUNTAIN QUADRANGLE
MONTANA-POWELL CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

113°15'
47°07'30"

130°00'00" E

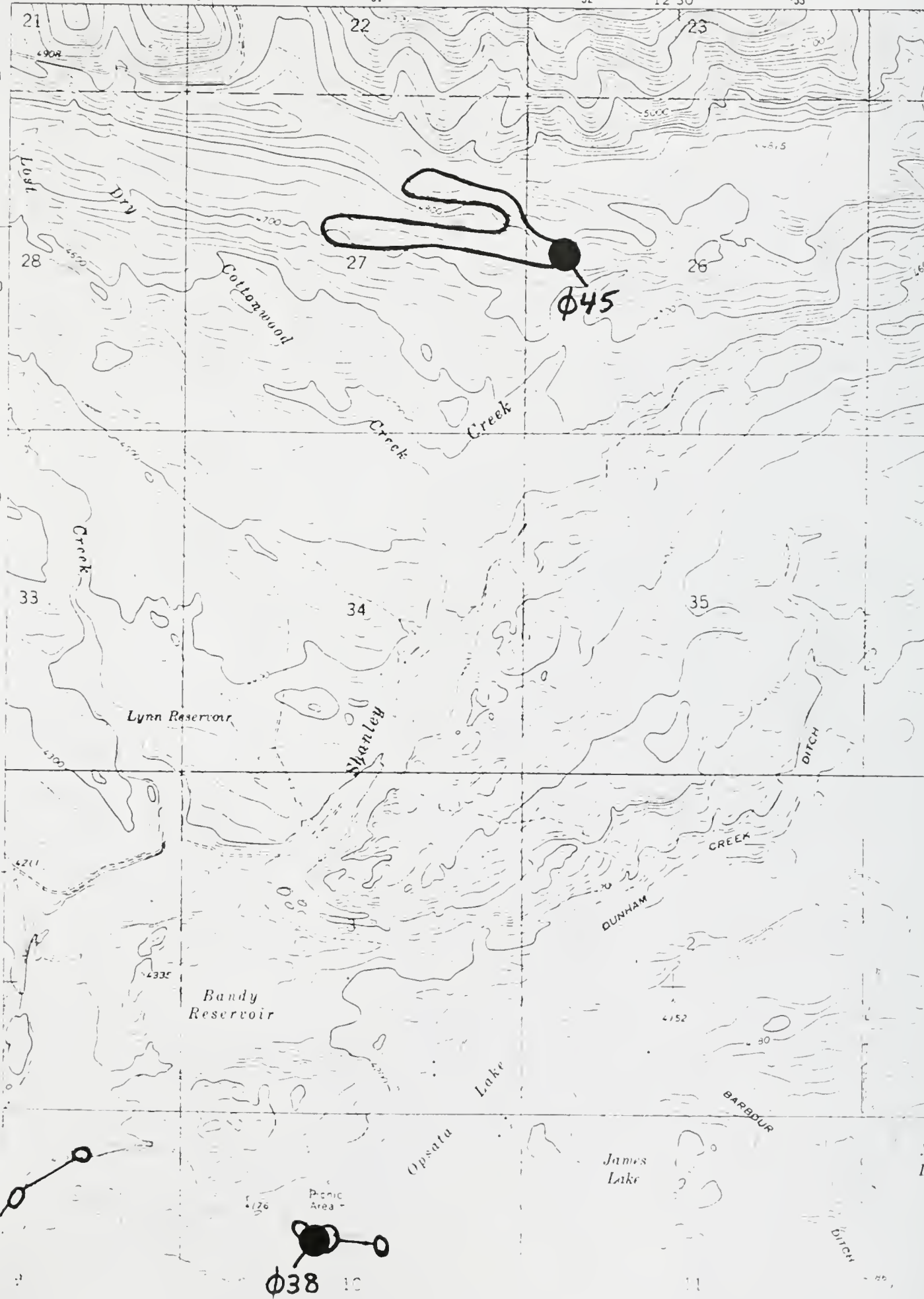
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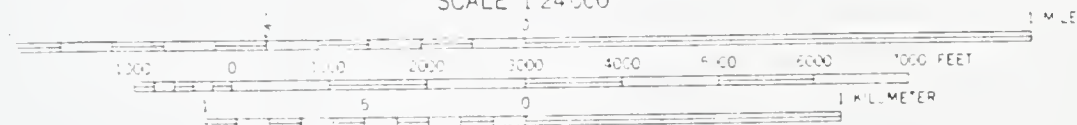
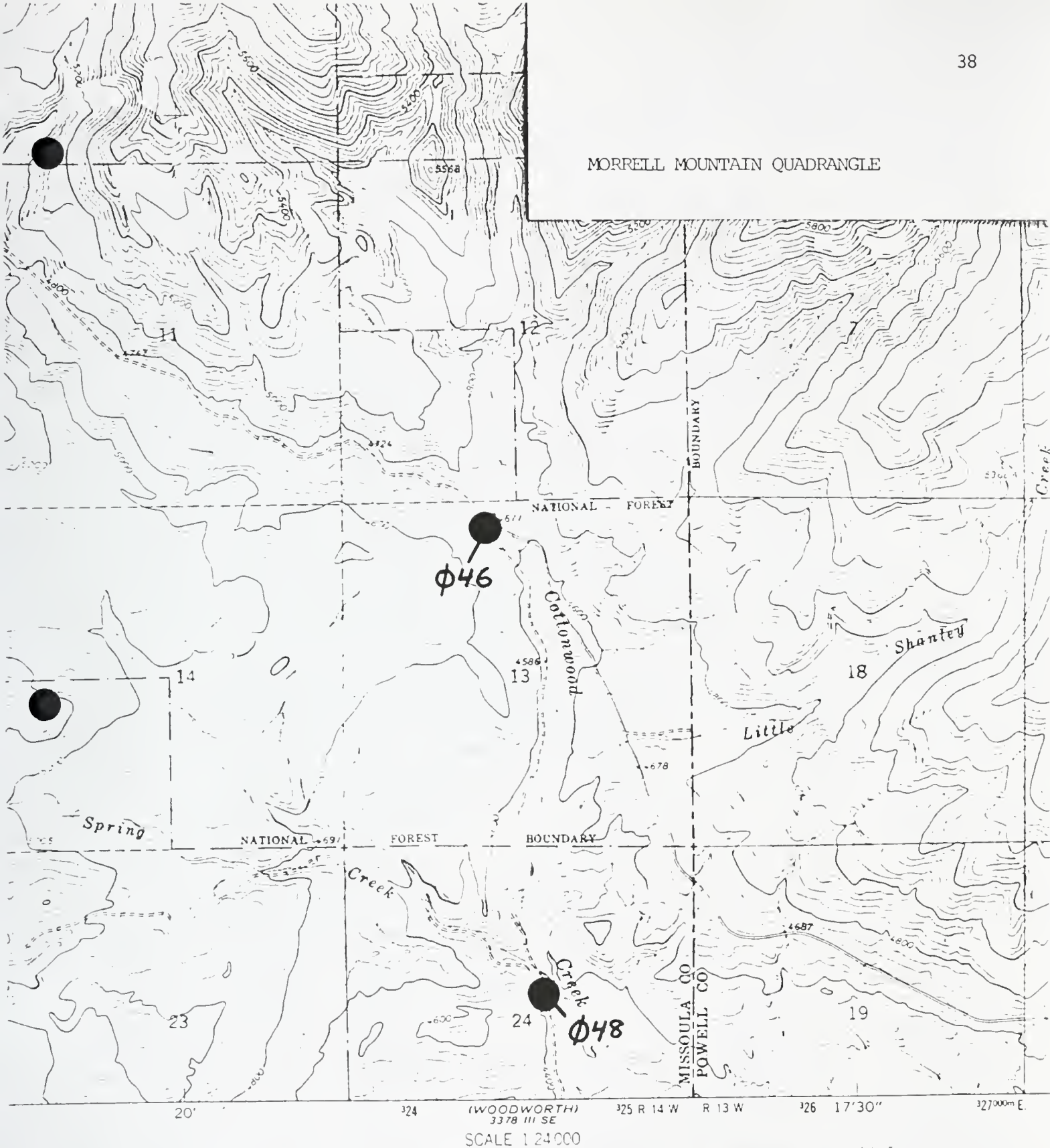
12°30"

133

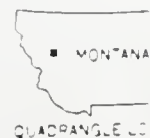
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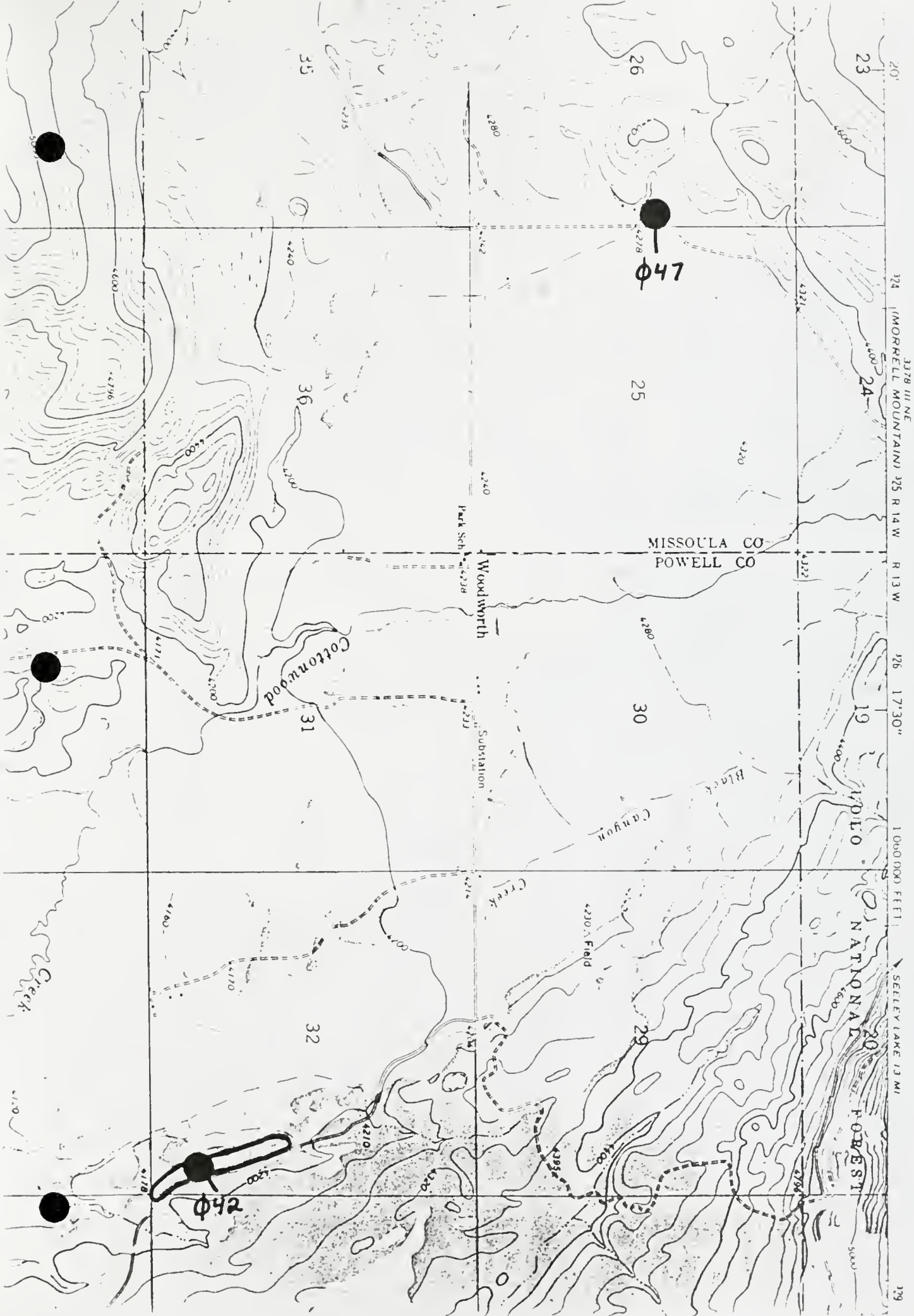


MORRELL MOUNTAIN QUADRANGLE



CONTOUR INTERVAL 40 FEET
DATUM IS MEAN SEA LEVEL

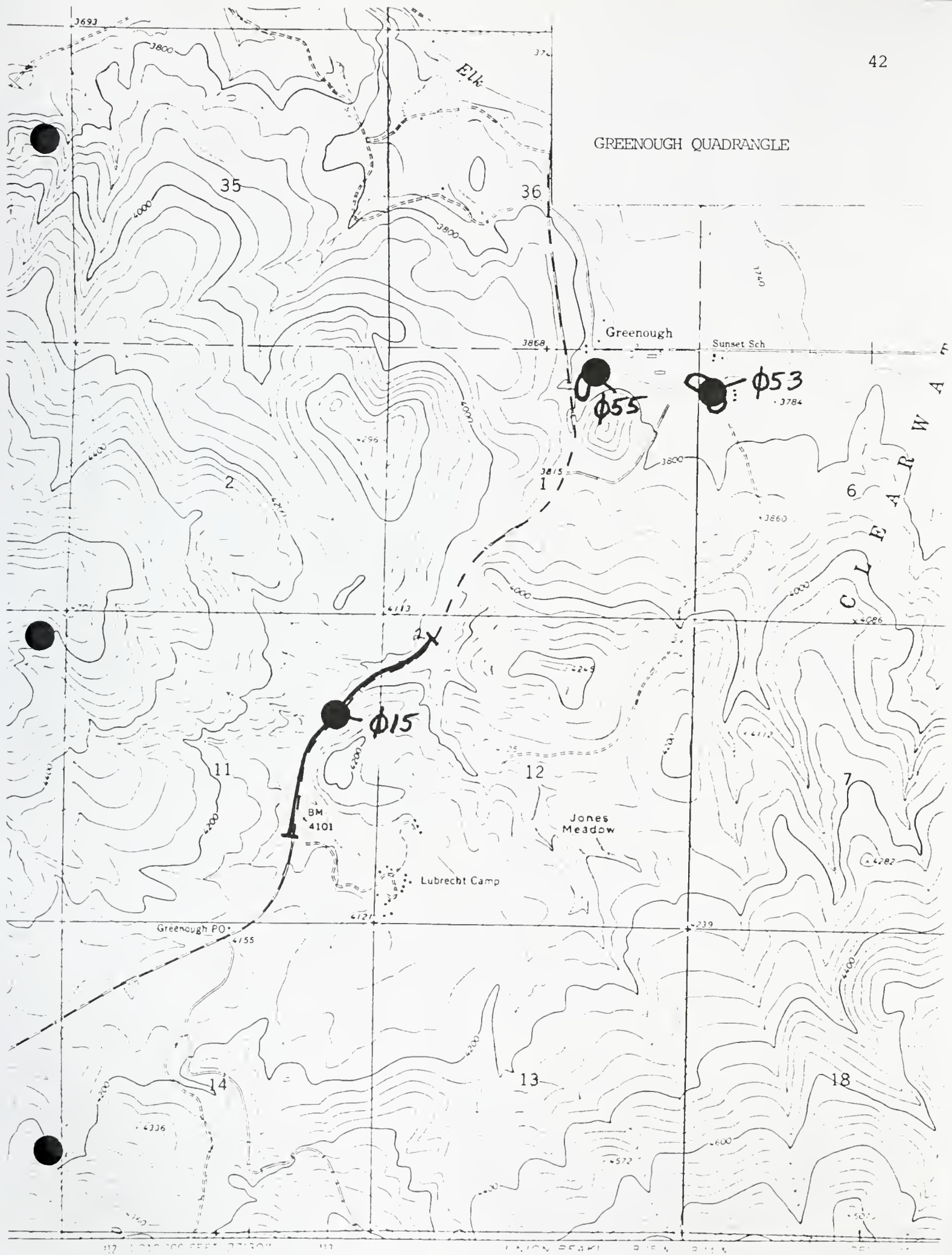




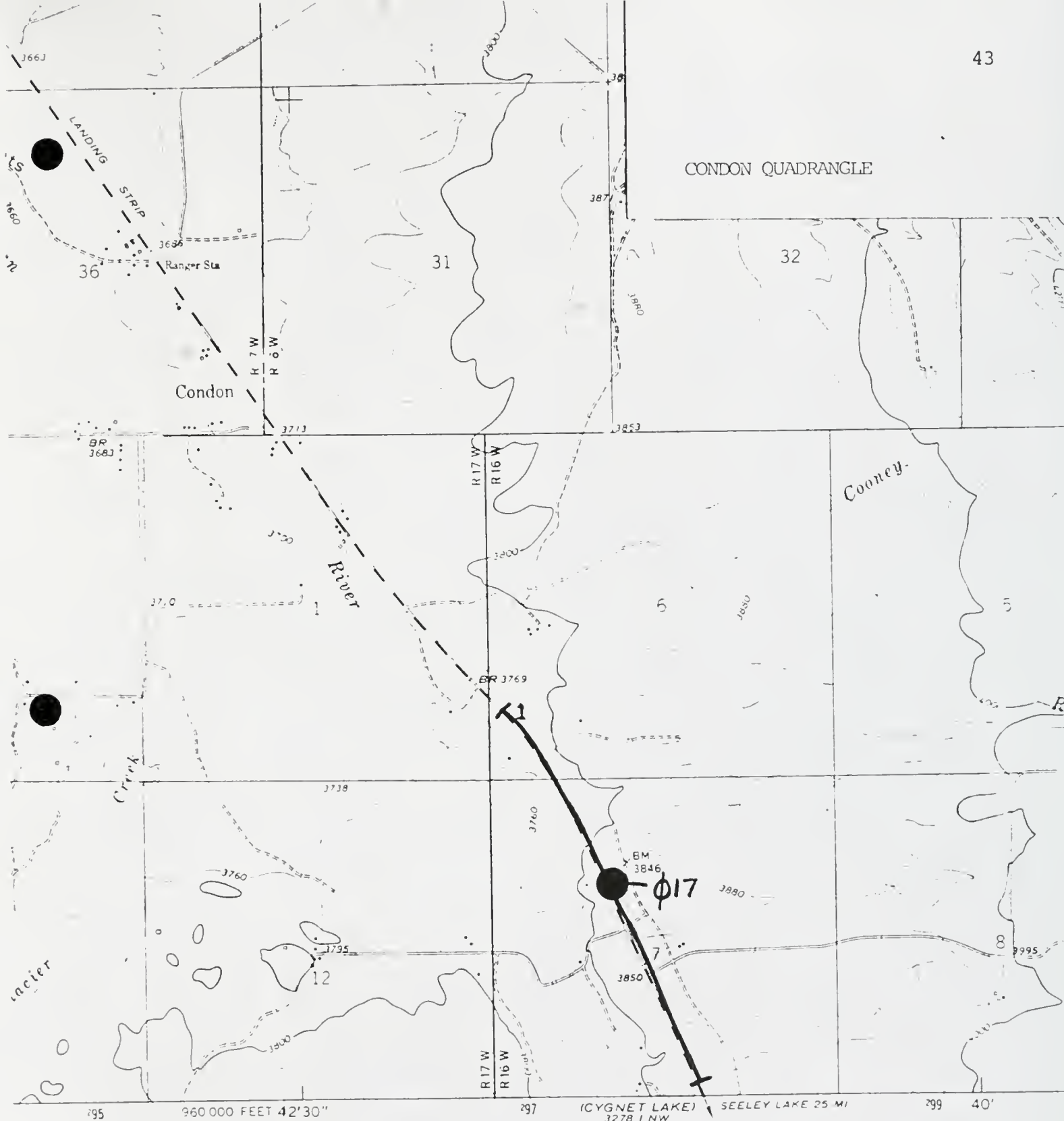
BELMONT POINT QUADRA
MONTANA-MISSOULA CO
7.5 MINUTE SERIES (TOPOGRA



GREENOUGH QUADRANGLE

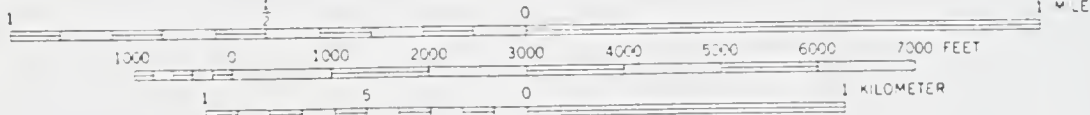


CONDON QUADRANGLE



Survey

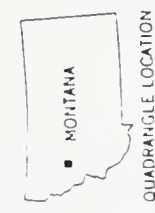
SCALE 1:24,000



CONTOUR INTERVAL 40 FEET
 DOTTED LINES REPRESENT 20-FOOT CONTOURS
 NATIONAL GEODETIC VERTICAL DATUM OF 1929

1959 AND 1965 MAGNETIC NORTH
 AT CENTER OF SHEET

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
 FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225 OR RESTON, VIRGINIA 22092
 1:24,000 SCALE AND 1:50,000 SCALE MAPS AND SYMBOLS AVAILABLE ON REQUEST



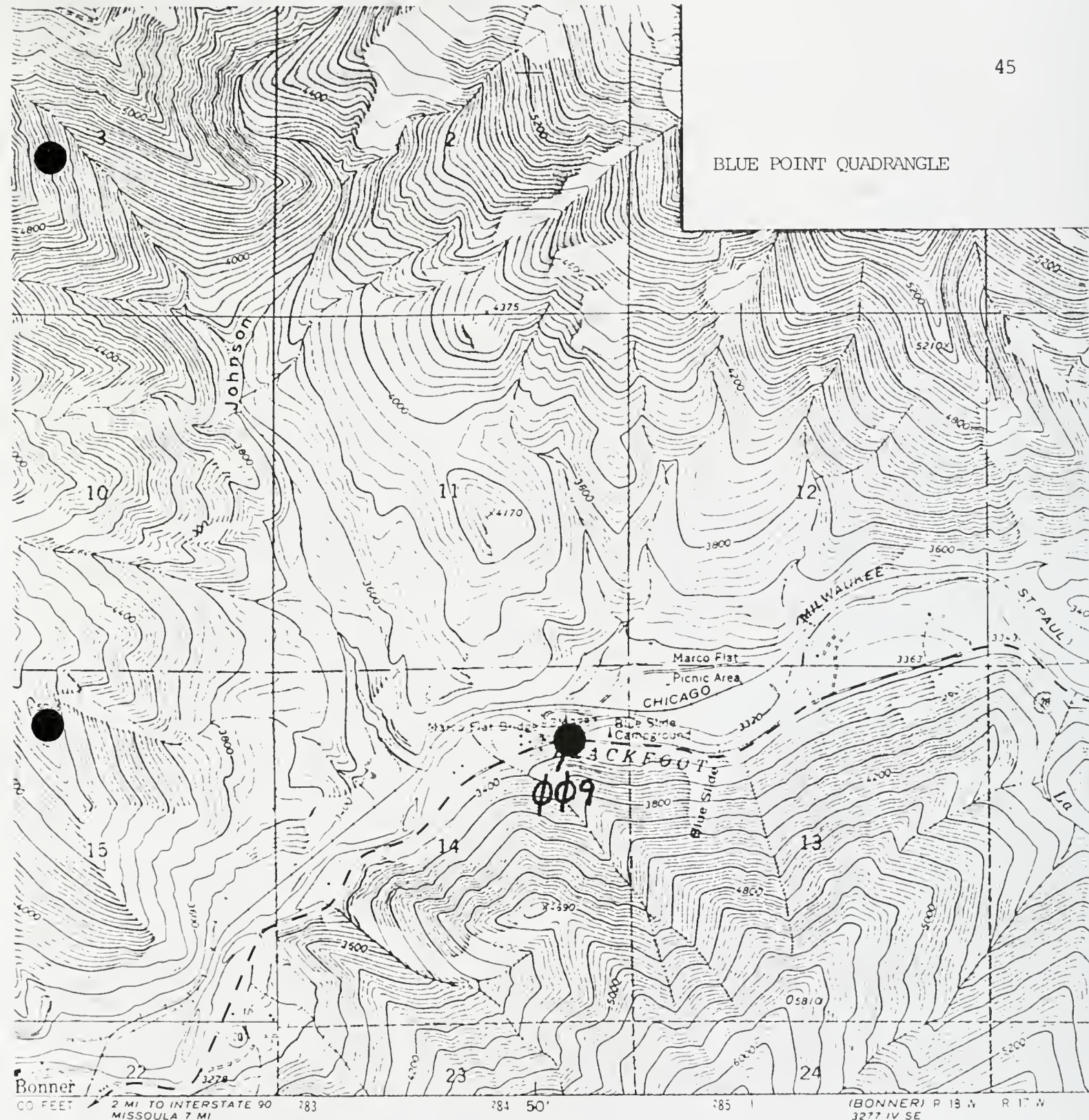
SALMON LAKE, MONT.
 N4700—W11322.5/7.5

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
 FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR WASHINGTON, D. C. 20242
 A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

1965

AMC 1170 III SW SERIES 1000

BLUE POINT QUADRANGLE



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C2GS

metric methods from aerial photographs
ed 1965

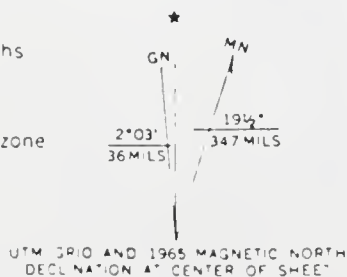
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Montana coordinate system, central zone
inverse Mercator grid ticks.

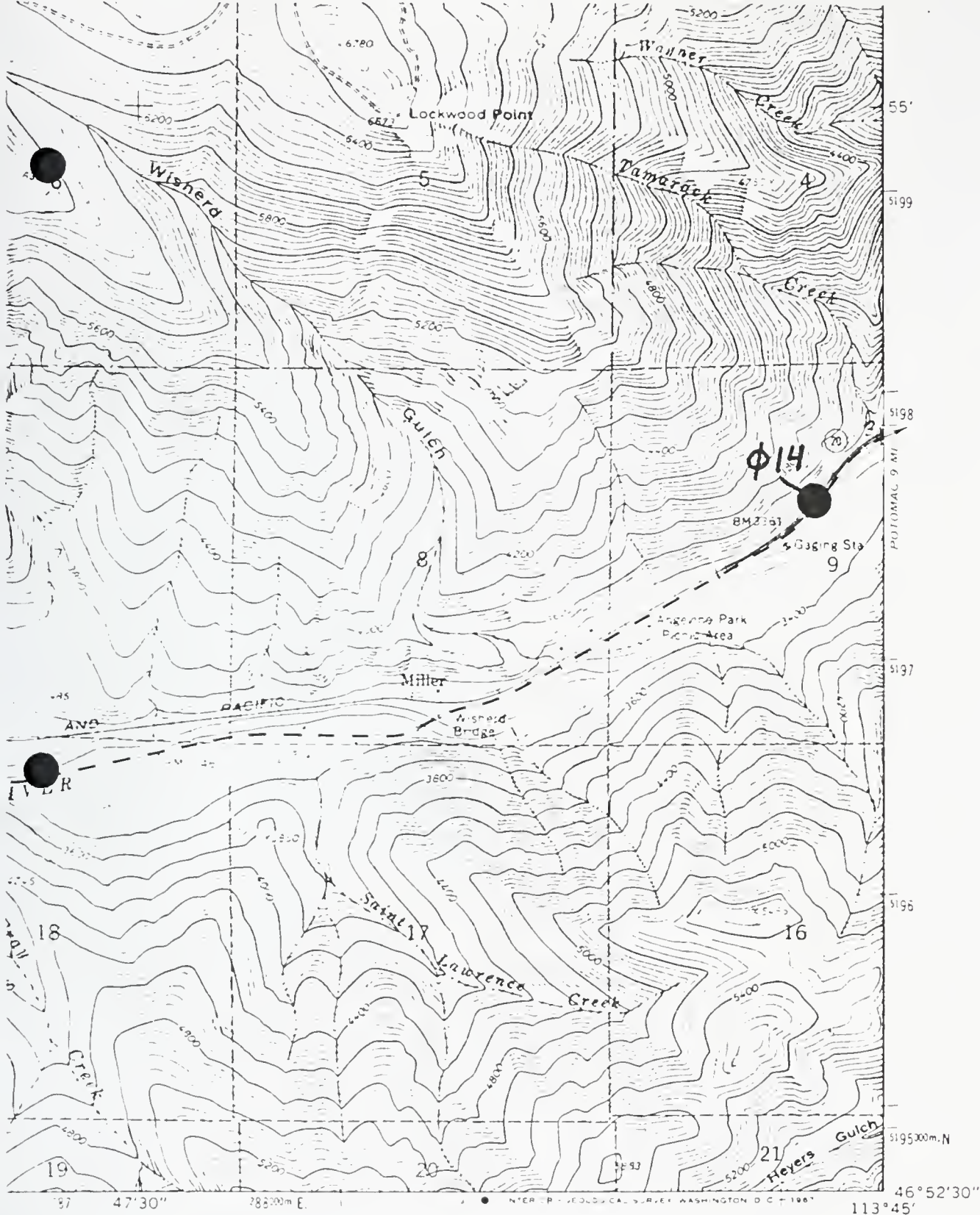
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CONTOUR INTERVAL 40 FEET
DATUM IS MEAN SEA LEVEL



THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225. OR VISIT
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE



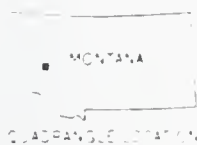
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Light duty

Unimproved dirt

State Route

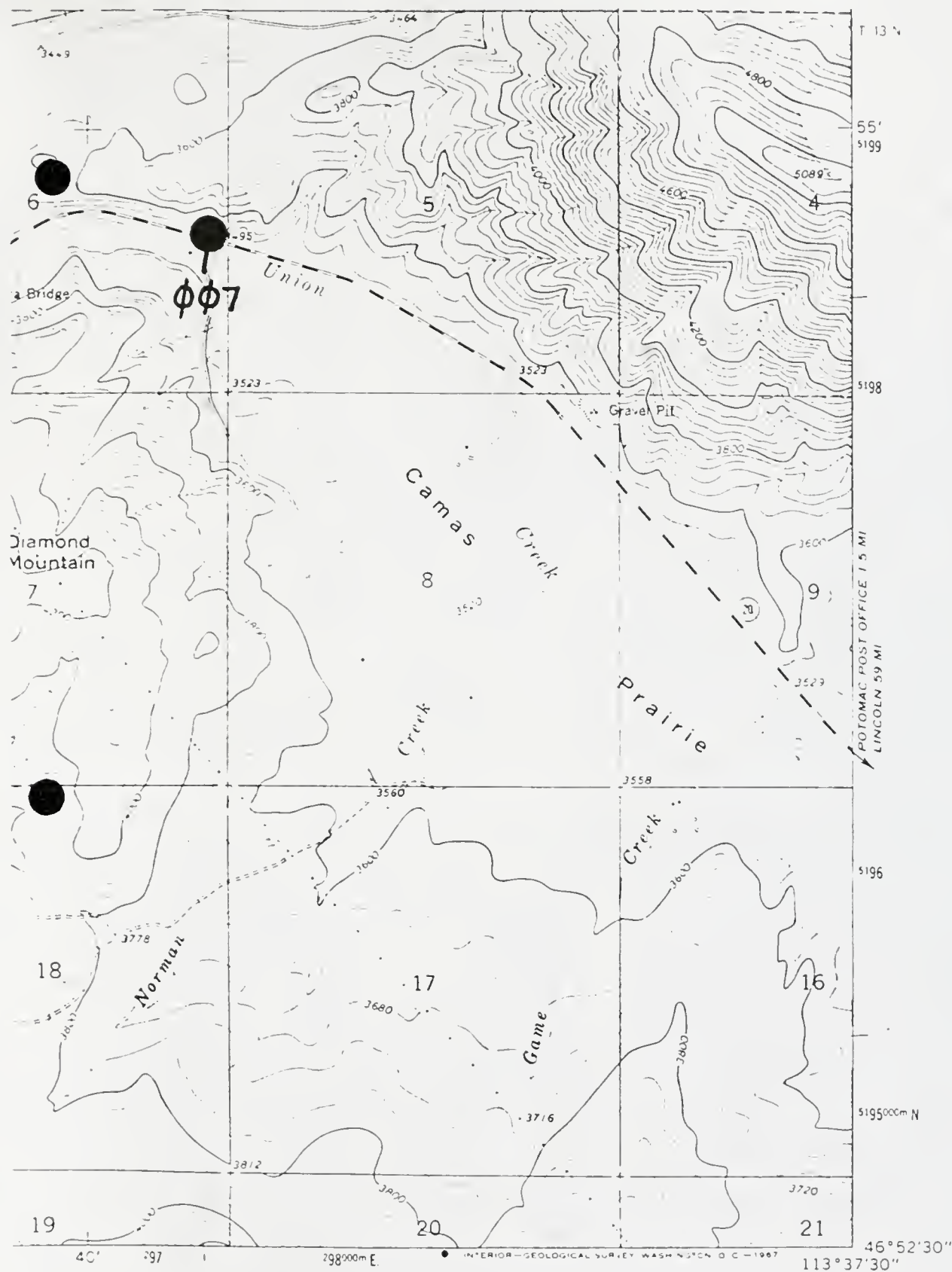


BLUE POINT, MONT.

4652 5—W11345/7 5

1965

461138



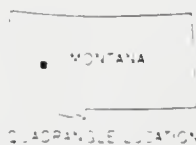
ROAD CLASSIFICATION

Medium duty

Light duty

Unimproved dirt

State Route



SUNFLOWER MOUNTAIN, MONT.

N4652.5W1133°57.5

4611385

SUNFLOWER MOUNTAIN QUADRANGLE



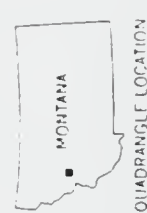


ROAD CLASSIFICATION

Medium duty — Light duty

Unimproved dirt

State Route



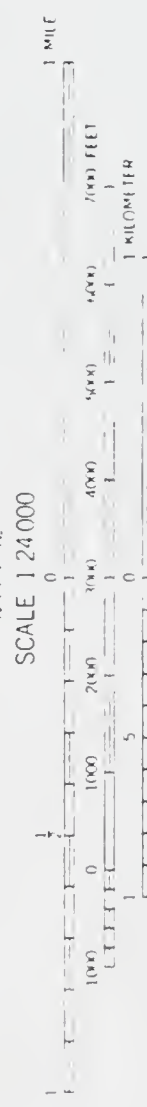
POTOMAC, MONT.

N4652 5—W11330 7 5

49

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS.

FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR WASHINGTON, D. C. 20242





GREENOUGH QUADRANGLE
MONTANA-MISSOULA CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
LINCOLN 40 MI.
OVAN 11

Heritage Program).

- a. Breaks of the St. Maries River.
 1. Idaho, Benewah County.
 2. 47°14'05"N, 116°36'45"W, 2500 ft.
 3. T45N, R2W, Section 20.
 4. USGS Quad: Emida (15 minute series).
 5. Year of most recent observation: 1979.
 6. "Breaks of the St. Maries River."
- b. Overlooking St. Maries Tributary Road.
 1. Idaho, Benewah County.
 2. 47°12'45"N, 116°33'30"W, 2800 ft.
 3. T45N, R2W, Section 26.
 4. USGS Quad: Emida (15 minute series).
 5. Year of most recent observation: 1979.
 6. "Overlooking St. Maries tributary road from Lindstrom Peak (=Cardwell Branch of Flat Creek Road) SW. of State Hwy. E (sic), from seven miles south of St. Maries."

It is likely that one or both of these sites constitute the type locality of the species.

4. Locations not yet investigated believed likely to support additional natural populations: Areas between the two centers of distribution may harbor a few scattered localities. In addition, it is likely that other occurrences are extant in the St. Maries River and adjacent drainages in Idaho (S. Caicco, Idaho Natural Heritage Program, pers. comm.).
 5. Reports having ambiguous or incomplete locality information: None known.
 6. Locations known or suspected to be erroneous reports: None.
- C. Biogeographical and phylogenetic history:
 Details unknown, and not yet investigated.
Grindelia howellii is probably most closely related to the sympatric G. squarrosa.
6. General environment and habitat description.
 - A. Concise statement of general environment and habitat: Grindelia howellii occurs in a variety of disturbed and natural habitats, including

roadsides, grazed pastures, cultivated pine plantations, forest openings, river terraces, and native grasslands. The species is broadly confined to a transitional area between lower elevation Festuca scabrella grasslands and the intermixed lower forest zone; common associates in the latter include Pinus ponderosa, Pseudotsuga menziesii, and Larix occidentalis. Populations are often associated with swales and slight depressions, or occur along compacted road margins, where the soil environment is likely to be slightly more mesic, especially in the spring and early summer. Soils are most often of a gravelly loam or loam texture. The species occurs in an elevational range of 2500-4880 feet. Habitat slides are included on p. 7.

B. Physical characteristics.

1. Climate.

- a. **Koppen climate classification:** Type Dfb, with average January temperature below 0°C (32°F), average temperature of warmest month above 10°C (50°F) and under 22°C (71.6°F), with no dry season, and the driest month of summer receives more than 3 cm (1.2 in.) of rain (Visher, 1954).
- b. **Regional macroclimate:** Two principal climatological stations are located within the range of Grindelia howellii in Montana: Ovando and Seeley Lake Ranger Station. Data for the period 1941-1970 are provided by the U.S. Department of Commerce (1973). At Ovando, the mean annual precipitation was 16.43 inches; the mean annual temperature was 39.2°F, and the mean July temperature was 61.3°F. At Seeley Lake Ranger Station, the mean annual precipitation was 22.28 inches; the mean annual temperature was 41.0°F, and the mean July temperature was 62.3°F.
- c. **Local microclimate:** No quantitative information available. Grindelia howellii is most frequent in areas which receive full solar insolation for most of the day, and diurnal fluctuation in temperature is thus expected to be greater than the average.

2. Air and water quality requirements: Unknown.

3. **Physiographic province:** Within the Northern Rocky Mountain Province mapped by Fenneman (1931); within the Rocky Mountain System, Rocky Mountains in Montana and Canada Province, mapped by Hunt (1974).
4. **Physiographic and topographic characteristics:** Grindelia howellii occurs in association with two geologic formations in Montana. In the lower elevation valleys in the vicinities of Ovando and Clearwater Junction, it occurs on Tertiary sediments of the Willow Creek formation; these are comprised of glacial deposits and alluvium, deposited in the Cenozoic Era. In the adjacent low mountains, it occurs in areas of much older sedimentary rock, comprised of the Upper Belt formations of the Piegan and Missoula groups; these formations are late Precambrian in age, and consist of quartzite and argillite (Perry, 1962).

Known sites occur at elevations of 2500 feet in Idaho to 4880 feet in Montana. All known populations occur in level to gently sloping areas; no sites were found on steep slopes. In several locations associated with largely undisturbed habitat (i.e., Holland Lake (001), Cottonwood Creek (040)), the species occurs abundantly in slightly concave areas, suggesting that it naturally prefers somewhat moister sites.

In Montana, the species occurs in the Swan and Clearwater/Blackfoot River drainages. These areas are within Hydrologic Unit Nos. 17010211 and 17010203, respectively, as mapped by the United States Geological Survey (1980).

5. **Edaphic factors:** Most sites occur on gravelly loam or loam soils; at a few sites, soils are of a clay loam or silt loam texture. Grindelia howellii occurs frequently in disturbed areas. These sites are found along the shoulders of gravel roads and old logging trails where soil compaction appears greater, and moisture retention is presumably higher. These observations, plus the occurrence of numerous plants in slight depressions at several undisturbed sites, suggest that G. howellii prefers soils which are slightly to poorly drained.

6. Dependence of this taxon on natural disturbance: Grindelia howellii occurs most frequently in areas of disturbance; this disturbance has most often resulted from human activities, i.e., road-building, logging, and grazing of livestock. Thus, it is expected that natural disturbances, such as erosion and flood scouring, could also result in local increases in the abundance of the species. At two sites (Spring Creek (013), Monture Creek Access (043)), many individuals occur on river terraces which are undoubtedly subjected to periodic flooding. Otherwise, a strict dependence on natural disturbance was not noted. Large, semi-natural sites in level meadows (i.e., Cottonwood Creek (040), Cozy Corners (047)) are associated with stable landforms.
7. Other unusual physical features: None observed.

C. Biological characteristics.

1. Vegetation physiognomy and community structure: Grindelia howellii is variously associated with a.) open grassland communities, b.) temperate evergreen conifer forests dominated by trees with more or less conical crowns, and c.) the forest border ecotone between the first two types.
2. Regional vegetation types: Largely within areas of Western ponderosa forest (Pinus) and Douglas-fir forest (Pseudotsuga), with a small portion of the range nearing the Foothills prairie (Agropyron-Festuca-Stipa), as mapped by Kuchler (1964). Occurs in four climax vegetation types mapped by Ross and Hunter (1976): a.) Subalpine fir/Douglas-fir/Ponderosa Pine Climax Forest, b.) Subalpine Fir/Douglas-Fir/Grand Fir Climax Forest, c.) Silty Range site with Rough fescue, Idaho fescue, bluebunch wheatgrass, et al., and d.) Subirrigated and Wetland Range site with tall reedgrasses, tufted hairgrass, et al.
3. Frequently associated species:
 Native: Pinus ponderosa Dougl.ex Laws.& Laws
P. contorta Dougl. ex Loud.
Pseudotsuga menziesii (Mirb.) Franco
Larix occidentalis Nutt.

Picea engelmannii Parry ex Engelm.
Populus tremuloides Michx.
Festuca scabrella Torrey ex Hook.
Stipa richardsonii Link
Balsamorhiza sagittata (Pursh) Nutt.
Aster spp.
Potentilla gracilis Dougl. ex Hook.
Geranium viscosissimum
 Fisch. & Meyer ex Meyer
Solidago missouriensis Nutt.
Achillea millefolium L.
Grindelia squarrosa (Pursh) Dunal
Chrysopsis villosa Pursh
Lithospermum ruderale Dougl. ex Lehm.
Madia glomerata Hook.

Introduced:

Centaurea maculosa Lam.
Phleum pratense L.
Verbascum thapsus L.
Melilotus officinalis (L.) Pallas
Poa pratensis L.
Cirsium arvense (L.) Scop.
C. vulgare (Savi) Tenore
Carduus nutans L.
Linaria vulgaris Miller

4. **Dominance and frequency of the taxon:**
Grindelia howellii occurs most often in clusters of 10-300 plants along disturbed road margins, where its cover varies from approximately 5-20%. In natural and semi-natural habitats, the sites are less dense, with cover varying between 1-10%. An exception to the latter is the Cozy Corners site (047), where ca. 3000 plants are found in a small, fenced, grazed pasture; the average cover here is approximately 30-40%, and G. howellii is the dominant forb.

5. **Successional phenomena:** Grindelia howellii occurs almost exclusively in open areas, either in native grasslands, or along logging roads or trails in forest openings. The species does not tolerate canopy closure or shade.

The results of these surveys indicate that G. howellii tolerates disturbance very well, and in fact appears to be a species which readily flourishes in early successional areas. Habitat disturbance has led to an increase in the species' abundance in certain locations.

This phenomenon is best exemplified at the Mollet Park site (020). Mollet Park is a large, undisturbed Festuca scabrella grassland in good condition. The northern portion of this area has been planted to a Pinus ponderosa plantation. Furrows one to two feet deep were dug, and the trees planted in the bottoms. Grindelia howellii has aggressively invaded a portion of the plantation, spreading along the furrow bottoms. The species was not found at all, however, in the undisturbed portion of the grassland.

Further evidence that Grindelia howellii behaves as a ruderal species is provided by the fact that, of the 45 populations studied in Montana, 42 (93%) of these occur in lightly to heavily disturbed habitats. Of these latter sites, 24 (53%) occur only along roadsides, and are often most likely the results of introduction. Surveys away from the roads at many of these sites did not reveal any plants in less disturbed habitats.

6. Dependence on dynamic aspects of biotic associations and ecosystem features: Details unknown; it is probable that certain events, such as forest fires or tree falls, could lead to an increase in abundance if a seed source was nearby.
7. Other endangered, threatened, rare, or vulnerable species occurring in habitat of this taxon: None known or observed.

7. Population biology of taxon.

- A. General summary: Populations generally consist of approximately 10-300 flowering individuals. Sterile basal rosettes are evident at virtually every site, suggesting good seedling establishment and survivorship. The species is capable of invading disturbed areas, and appears to prefer early successional stages. Pollination by members of the genus Bombus was observed; the breeding system probably combines outcrossing and selfing, as bumblebees were observed to visit flowers on the same plant and on separate plants while foraging.

B. Demography.

1. Known populations: Forty-five extant

populations are known in Montana; two recently observed sites are known in Idaho. In Montana, the sites occur within an area of approximately 370 square miles. The total number of individuals from all of the known populations in Montana is roughly estimated to be 13000-15000; the average population size is approximately 290.

2. General demographic details (Table 3, p. 58).

C. Phenology.

1. **Patterns:** Open flowers were observed from late July through late August; anthesis probably occurs for about 5-6 weeks, starting in mid-July. Many plants had developing fruit by the third week of August, and seed dispersal probably occurs through September. The plants are most conspicuous and easily identifiable in the field in late July and early August.
2. **Relation to climate and microclimate:** Details unknown; may continue flowering later in areas which retain soil moisture later in the summer.

D. Reproductive ecology.

1. **Types of reproduction:** Details of the breeding system are unknown. Pollinators (Bombus spp.) were observed visiting flowering heads at several locations. It is likely that there is some outcrossing as well as selfing, as the insects were observed to indiscriminately fly between the heads of the same and different plants while foraging.

No evidence of asexual reproduction was observed during field studies. The extent to which apomixis occurs in the genus is unknown.

2. Pollination.

- a. **Mechanisms:** By insects, as discussed above, and to a limited extent possibly by selfing.
- b. **Specific known pollinators:** As noted, Bombus spp. (bumblebees) were observed visiting the heads at several locations.
- c. **Other suspected pollinators:** None.

Table 3. General Demographic Details

Occurrence number: 001	Sitename: HOLLAND LAKE
COUNTY: MISSOULA	
Acreage: 5	
Population Data: EST. 1500-2000 INDIVIDUALS; GOOD SEEDLING ESTABLISHMENT; A PORTION OF THE SITE IS WITHIN A TIMBER SALE AREA; HIGHLY VARIABLE POPULATION, WITH NUMEROUS INDIVIDUALS HAVING FEATURES OF G. SQUARROSA.	
Occurrence number: 005	Sitename: BLANCHARD FLATS
COUNTY: MISSOULA	
Acreage: 1	
Population Data: 14 PLANTS COUNTED, FLOWER AND FRUIT.	
Occurrence number: 006	Sitename: VAUGHN RANCH
COUNTY: MISSOULA	
Acreage: LESS THAN 1	
Population Data: 9 PLANTS COUNTED DURING 1986 SURVEYS; THE WOODLAND COLLECTIONS WERE THE FIRST RECORDS FOR MONTANA.	
Occurrence number: 010	Sitename: SALMON-SEELEY ROAD
COUNTY: MISSOULA	
Acreage: 3	
Population Data: 14 PLANTS COUNTED, FLOWER AND FRUIT.	
Occurrence number: 024	Sitename: VAUGHN CREEK
COUNTY: MISSOULA	
Acreage: 1	
Population Data: 54 PLANTS, FLOWERS AND EARLY FRUIT; PLANTS OCCUR ON ROADSIDE AND ON THE EDGE OF A CLEARCUT.	

Table 3. General Demographic Details

Occurrence number: 025	Sitename: PLACID-LOST PRAIRIE ROAD
COUNTY: MISSOULA	
Acreage: 2	
Population Data: 45 PLANTS, IN FLOWER; PLANTS OCCUR RIGHT ALONG THE ROAD ONLY.	
Occurrence number: 026	Sitename: HORSEHEAD ROAD
COUNTY: MISSOULA	
Acreage: 5	
Population Data: CA. 325-400 PLANTS, TWO SUBPOPULATIONS (250-300 AND 75-100), IN FLOWER; PLANTS OCCUR IN & ALONG A DIRT ROAD, WITH 1 CLUMP OF CA. 100 PLANTS IN AN UNUSED, OLD TRAIL; SMALLER NE. POPULATION IN ANOTHER OLD TRAIL.	
Occurrence number: 027	Sitename: LOST HORSE CREEK
COUNTY: MISSOULA	
Acreage: 3	
Population Data: CA. 200-250 PLANTS, IN FLOWER AND EARLY FRUIT; WEED COMPETITION IS VERY SERIOUS (SPOTTED KNAPWEED), AND PLANTS ARE SMALLER AND APPEAR TO BE MORE FEEBLE, POSSIBLY AS A RESULT OF THIS COMPETITION.	
Occurrence number: 028	Sitename: LOST HORSE ROAD
COUNTY: MISSOULA	
Acreage: 2	
Population Data: 45 MATURE PLANTS COUNTED, ROSETTES NOT COUNTED; ROAD BISECTS SITE, AND AREA IS GRAZED.	
Occurrence number: 029	Sitename: LOST HORSE SPUR ROAD
COUNTY: MISSOULA	
Acreage: 2	
Population Data: 175 PLANTS COUNTED, BUT PROBABLY AT LEAST 200 PLANTS; INDIVIDUALS OCCUR LARGELY IN AND ALONG OLD LOGGING ROAD, BUT CA.6 PLANTS OCCUR IN ADJACENT, LESS DISTURBED MEADOW OPENING.	

Table 3. General Demographic Details

Occurrence number: 030 Sitename: LOST HORSE-BLANCHARD ROAD
 COUNTY: MISSOULA
 Acreage: 5
 Population Data: 85 PLANTS COUNTED, IN FLOWER; PLANTS OCCUR MOSTLY ALONG ROAD
 MARGIN, WITH A FEW SCATTERED 20-30 FEET AWAY FROM THE ROAD;
 PLANTS ALSO SCATTERED ALONG ROAD NEAR LAKE TO THE SOUTH.

Occurrence number: 031 Sitename: BLANCHARD UPLANDS
 COUNTY: MISSOULA
 Acreage: 125
 Population Data: CA. 800-1000 PLANTS, IN FLOWER; SPECIES OCCURS THROUGHOUT A
 LARGE AREA, ALONG LITTLE-USED LOGGING TRAILS, AND IN
 FREQUENT CLUSTERS IN OPENINGS AND MEADOWS.

Occurrence number: 044 Sitename: CLEARWATER BACKROAD
 COUNTY: MISSOULA
 Acreage: 5
 Population Data: EST. 150-160 PLANTS; 108 FLOWERING STEMS COUNTED, CA. 40-50
 ROSETTES; FLOWERS AND EARLY FRUIT; PLANTS FOUND ONLY IN AND
 ALONG AN OLD, LITTLE USED LOGGING TRAIL, IN SMALL CLEARINGS
 IN THE WOODS.

Occurrence number: 046 Sitename: LOWER COTTONWOOD ROAD
 COUNTY: MISSOULA
 Acreage: 1
 Population Data: 27 PLANTS COUNTED; SMALL POPULATION NEAR ROAD JUNCTION.

Occurrence number: 047 Sitename: COZY CORNERS
 COUNTY: MISSOULA
 Acreage: 5
 Population Data: EST. 3000 PLANTS; FRUIT, LATE FLOWER; ELEMENT IS THE
 DOMINANT FORB AT THIS SITE, AND OCCURS IN A SMALL, FENCED
 PASTURE ON STATE LAND; DENSEST POPULATION STUDIED.

Table 3. General Demographic Details

Occurrence number: 048	Sitename: SPRING CREEK ROAD
COUNTY: MISSOULA	
Acreage: 1	
Population Data: 40 PLANTS, INCLUDING ROSETTES, COUNTED; SMALL, ROADSIDE POPULATION.	
Occurrence number: 049	Sitename: OWL CREEK UPLANDS
COUNTY: MISSOULA	
Acreage: 5	
Population Data: CA. 140 PLANTS COUNTED, INCLUDING ROSETTES, IN FOUR SUBPOPULATIONS; PLANTS OCCUR ALONG LITTLE-USED LOGGING ROAD, AND IN A PULL-OUT AREA (EAST SUBPOPULATION).	
Occurrence number: 050	Sitename: PLACID LAKE CLEARCUT
COUNTY: MISSOULA	
Acreage: 1	
Population Data: 8 PLANTS COUNTED, IN FRUIT; POPULATION MAY POSSIBLY EXPAND, AS SURROUNDING HABITAT HAS BEEN DISTURBED.	
Occurrence number: 051	Sitename: BARBER CREEK
COUNTY: MISSOULA	
Acreage: 3	
Population Data: 12 PLANTS TOTAL; 2 PLANTS WITH GLABROUS STEMS (I.E., G. SQUARROSA) FOUND IN SE. SUBPOPULATION; MOST PLANTS IN CLEARCUT AREA.	
Occurrence number: 052	Sitename: SOUTH FORK BARBER CREEK
COUNTY: MISSOULA	
Acreage: 1	
Population Data: 23 PLANTS IN ROAD AND ON ROADBANK.	

Table 3. General Demographic Details

Occurrence number: 013 Sitename: SPRING CREEK
 COUNTY: POWELL
 Acreage: 3
 Population Data: 49 PLANTS COUNTED, FLOWER AND FRUIT; PLANTS WERE NOT LOCATED
 FAR AWAY FROM THE ROADSIDE.

Occurrence number: 018 Sitename: DICK CREEK
 COUNTY: POWELL
 Acreage: 1
 Population Data: CA. 150-200 PLANTS, MOSTLY IN FLOWER; SPECIES IS RESTRICTED
 TO DISTURBED SOIL AREAS, AND WAS NOT FOUND IN ADJACENT
 UNDISTURBED HABITAT.

Occurrence number: 019 Sitename: OVANDO-CHAMPION
 COUNTY: POWELL
 Acreage: 2
 Population Data: CA. 250-300 PLANTS, IN FLOWER AND EARLY FRUIT; SPECIES
 OCCURS AS A ROADSIDE RUDERAL, AND PLANTS WERE NOT FOUND AWAY
 FROM THE ROAD.

Occurrence number: 020 Sitename: MOLLET PARK
 COUNTY: POWELL
 Acreage: 19
 Population Data: CA. 500-600 PLANTS, IN FLOWER; SPECIES DOES NOT OCCUR IN THE
 UNDISTURBED SOUTHERN PORTION OF THE NATIVE GRASSLAND IN
 MOLLET PARK, BUT IT IS ABUNDANT ALONG THE BOTTOMS OF THE
 FURROWS IN THE DISTURBED PINE PLANTATION.

Occurrence number: 021 Sitename: MOLLET PARK SOUTH
 COUNTY: POWELL
 Acreage: 3
 Population Data: TWO SUBPOPULATIONS, CA. 60-80 PLANTS (W. SITE) AND 10 PLANTS
 (E. SITE), FLOWER AND EARLY FRUIT; AREA IMPACTED BY LOGGING,
 GRAZING, AND ROAD CONSTRUCTION, BUT SPECIES OFTEN RESPONDS
 WELL TO DISTURBANCE.

Table 3. General Demographic Details

Occurrence number: 022	Sitename: MARTIN PARK
COUNTY: POWELL	
Acreage: 8	
Population Data: 50 PLANTS IN THREE SUBPOPULATIONS; PLANTS OCCUR ALONG EDGES OF LOGGING ROADS; AREA EAST OF WARREN CREEK IS HEAVILY GRAZED.	
Occurrence number: 023	Sitename: DONEY LAKE
COUNTY: POWELL	
Acreage: 2	
Population Data: 60 PLANTS, IN FLOWER; PLANTS OCCUR ALONG ROAD AND ON BANK S. OF ROAD; NOT OBSERVED AWAY FROM ROADSIDE.	
Occurrence number: 032	Sitename: SPRING CREEK LAKE
COUNTY: POWELL	
Acreage: 5	
Population Data: 16 PLANTS, 2 SMALL SUBPOPULATIONS; G. SQUARROSA OCCURS WITH THE ELEMENT ALONG THE OLD JEEP TRAIL IN S16S2; ONE PLANT SHOWING INTERMEDIATE FEATURES WAS COLLECTED HERE.	
Occurrence number: 033	Sitename: DICK CREEK EAST
COUNTY: POWELL	
Acreage: 1	
Population Data: 38 PLANTS COUNTED; PLANTS OCCUR ALONG LOGGING ROAD AND ADJACENT TO LOGGING SLASH PILES.	
Occurrence number: 034	Sitename: PEARSON CREEK
COUNTY: POWELL	
Acreage: 25	
Population Data: 228 PLANTS COUNTED, 3 SUBPOPULATIONS (EST. 275-300 TOTAL INDIVIDUALS); BEST GROUP (157 PLANTS) IS ADJACENT TO A MEADOW IN SE4SE4, ALONG AN UNUSED JEEP TRAIL WHERE CENTAUREA MACULOSA IS SPARSE.	

Table 3. General Demographic Details

Occurrence number: 035	Sitename: BLACKFOOT ROADSIDE
COUNTY: POWELL	
Acreage: 1	
Population Data: 80 PLANTS COUNTED, IN FLOWER; PLANTS HAVE RATHER AGGRESSIVELY INVADED A PULL-OUT ALONG THE ROAD; G. SQUARROSA IS ALSO PRESENT, AND SOME PLANTS ARE INTERMEDIATE BETWEEN THE 2 SPECIES.	
Occurrence number: 036	Sitename: BLACKFOOT ROADSIDE II
COUNTY: POWELL	
Acreage: 1	
Population Data: 15 PLANTS COUNTED, LATE FLOWER AND FRUIT; PLANTS OCCUR AS A WEEDY, ROADSIDE POPULATION, AND WERE NOT FOUND AWAY FROM THE ROAD.	
Occurrence number: 038	Sitename: UPSATA LAKE
COUNTY: POWELL	
Acreage: 8	
Population Data: CA. 250-300 PLANTS, IN FLOWER AND EARLY FRUIT; PLANTS FOUND ALONG FENCE LINES AND ROAD, AND ON POSTED PRIVATE LAND IN LIGHTLY GRAZED PASTURE.	
Occurrence number: 039	Sitename: UPSATA-WOODWORTH JUNCTION
COUNTY: POWELL	
Acreage: 7	
Population Data: CA. 350-400 PLANTS OBSERVED, IN 3 SUBPOPULATIONS; FLOWERS AND EARLY FRUIT; PLANTS OCCUR ALONG FENCES AND IN MODERATELY GRAZED NATIVE RANGE; SOUTHERN SUBPOPULATION IS LARGEST (300- 350 PLANTS), OCCURRING BETWEEN LOW HILLS.	
Occurrence number: 040	Sitename: COTTONWOOD CREEK
COUNTY: POWELL	
Acreage: 77	
Population Data: CA. 1200-1400 PLANTS IN WILDLIFE MANAGEMENT AREA, CA. 400- 500 PLANTS ON PRIVATE LAND EAST OF ROAD; THE MOST PLANTS ARE IN THE NORTHEAST CORNER OF S17, ON THE WILDLIFE MANAGEMENT AREA, WHERE MICROSITES ARE PROBABLY SOMEWHAT MOISTER.	

Table 3. General Demographic Details

Occurrence number: 041 Sitename: BLACKFOOT BACKROADS
 COUNTY: POWELL
 Acreage: 33
 Population Data: 68 PLANTS COUNTED, IN FLOWER; PLANTS OCCUR ALONG OLD LOGGING
 TRAILS, IN GRASSY OPENINGS, AND IN A SHADED THICKET.

Occurrence number: 042 Sitename: WOODWORTH
 COUNTY: POWELL
 Acreage: 15
 Population Data: CA. 500-600 PLANTS (MINIMUM), IN FLOWER AND EARLY FRUIT;
 PLANTS OCCUR IN GRASSY OPENINGS ON SW. SIDE OF ROAD, IN LESS
 DISTURBED HABITAT; NOT SEEN EAST OF ROAD, WHERE HABITAT IS
 RECENTLY LOGGED.

Occurrence number: 043 Sitename: MONTURE CREEK ACCESS
 COUNTY: POWELL
 Acreage: 15
 Population Data: CA. 225-250 PLANTS ON RIDGE, CA. 200 ON RIVER TERRACES ON
 EACH SIDE OF MONTURE CREEK; IN FLOWER AND FRUIT.

Occurrence number: 045 Sitename: SHANLEY CREEK
 COUNTY: POWELL
 Acreage: 40
 Population Data: 44 PLANTS COUNTED; FLOWERS AND EARLY FRUIT; PLANTS OCCUR IN
 SMALL, SCATTERED CLUMPS ALONG OLD LOGGING ROADS.

Occurrence number: 037 Sitename: CHAMPION GAME RANGE ROAD
 COUNTY: POWELL
 & MISSOULA
 Acreage: 19
 Population Data: 126 PLANTS COUNTED, IN FLOWER AND EARLY FRUIT; PLANTS TEND
 TO OCCUR ONLY RIGHT ALONG, AND IN, OLD LOGGING TRAILS;
 CLUMPS TEND TO OCCUR IN LOWER AREAS, WHICH MAY BE MOIST
 LONGER IN THE SEASON.

d. Vulnerability of pollinators: Unknown.

3. Seed dispersal.

a. General mechanisms: Although not directly observed, the achenes are presumably shaken from the heads and fall a short distance from the parents. Wind dispersal is unlikely, at least over great distances, as the pappus in Grindelia consists of firm awns which are readily deciduous.

The possibility of artificial dispersal by human activities should not be overlooked. The involucre in Grindelia are extremely sticky-resinous, and could easily adhere to passing vehicles in cases where plants occur right along, and in, the logging roads and trails with which they are frequently associated. Plants 2-3 feet tall were often found in the center strip of these roads, and they strike the front and underneath sides of a passing vehicle.

b. Specific agents: None known.

c. Vulnerability of dispersal agents and mechanisms: Not applicable.

d. Patterns of propagule dispersal: Not known in detail; many populations were observed to contain a number of basal rosettes. The populations generally occur in well-defined areas, although single, isolated individuals were found on a few occasions within the region covered by this study.

4. Seed biology.

a. Amount/variation of seed production: Details unknown; later surveys indicated that seed set appears to be good.

b. Seed viability and longevity: Unknown.

c. Dormancy requirements: Unknown.

d. Germination requirements: Unknown.

e. Percent germination: Unknown.

5. Seedling ecology: Details unknown; as noted

earlier, the species shows a preference for microsites which are moister than the surrounding habitat, and this preference may be a result of differential percentages of seed germination and subsequent seedling development.

6. **Survival and mortality:** No quantitative information; the plants do not appear to tolerate shade.
7. **Overall assessment of taxon's reproductive success:** Reproduction appears to be vigorous and adequate in nearly all of the populations studied. The main factors influencing reproductive success relate to past and present effects of human activities. The species tolerates, and in the majority of populations prefers, habitat disturbance. Though such activities may result in the destruction of some populations, the observed reproductive success of the species suggests that it may persist in fluctuating numbers over the Montana portion of its range, and in certain areas can increase in abundance owing to habitat disturbance.

8. Population ecology of taxon.

- A. **General summary:** Grindelia howellii occurs primarily in disturbed habitats, most often along logging roads and trails, and in disturbed pine plantations. In native, undisturbed grassland habitats (i.e., Blanchard Flats (005)) it is less frequent. The taxon does not tolerate canopy closure or complete shade. No specific obligate relationships are known.
- B. **Positive and neutral interactions:** None known or observed.
- C. **Negative interactions.**
 1. **Herbivores, predators, pests, parasites and diseases:** None specifically known; owing to the sticky-resinous inflorescences, Grindelia howellii is very unpalatable, and in some heavily grazed areas was the only species left ungrazed.
 2. **Competition.**
 - a. **Intraspecific:** No quantitative information; some populations are very dense (i.e., Cozy Corners (047)), but competitive effects were not superficially noticeable.

- b. **Interspecific:** Grindelia howellii thrives in greatest numbers in disturbed, weedy habitats. The species occurs less frequently in native grassland habitats, and the plants in these sites are more widely scattered. These observations suggest that G. howellii has poor competitive ability in climax, closed grassland communities.

3. **Toxic and allelopathic interactions:** Serious infestations of Centaurea maculosa Lam. (Spotted knapweed) are occurring throughout west-central Montana. There is evidence that Centaurea spp. produce allelopathic substances which inhibit plant growth (Fletcher and Renney, 1963). Though G. howellii frequently occurs in weedy habitats associated with C. maculosa, the potential impacts of the latter on natural communities were most noticeable at one site (Lost Horse Creek (027)). The area is a Pinus ponderosa/Festuca scabrella habitat type in which C. maculosa is replacing native species. Though 200-250 individuals of G. howellii were found here, the plants were noticeably smaller and appeared quite feeble, most likely due to the competition from C. maculosa. The replacement of native vegetation in western Montana by this aggressive species will continue to be a serious problem in the future. Though not currently threatened rangewide by this species, populations of G. howellii should be periodically field-checked to assess any increasing replacement which may take place.

D. Hybridization.

1. **Naturally occurring:** Evidence of hybrid contact and introgression with the sympatric Grindelia squarrosa was found at the following four sites:

Holland Lake (001)
 Spring Creek Lake (032)
 Blackfoot Roadside (035)
 Barber Creek (051)

Grindelia howellii has glandular, sometimes villous stems, while G. squarrosa has glabrous stems. At the sites listed, individuals referable to both species were found; in addition, plants intermediate with

respect to stem vestiture are present, and are characterized by sparsely glandular and/or villous stems. A study of 100 plants at the Holland Lake site revealed the following ratio:

Stems glabrous:	25/100
Stems sparsely glandular-hairy:	49/100
Stems glandular, long-villous:	26/100

The other three sites are all smaller in size, with one-few plants possessing intermediate features; these three locations are on the edges of the known range of G. howellii in Montana. To the east and southeast in Powell and Lewis & Clark counties, only G. squarrosa has been found.

2. Artificially induced: None known.
3. Potential in cultivation: Unknown, probably good.

E. Other factors of population ecology: None known.

9. Current land ownership and management responsibility.

A. General nature of ownership: United States Government, State of Montana, and private.

B. Specific landowners:

1. U.S. Forest Service
Region 1, Federal Building
P.O. Box 7669
Missoula, MT 59807
2. Department of State Lands
1625 11th Avenue
Helena, MT 59620
3. Champion International Corporation
P.O. Box 8
Milltown, MT 59851
4. Burlington Northern
36 N. Last Chance Gulch
Helena, MT 59601
5. Many individual, private landowners.

C. Management responsibility.

1. U.S.F.S.: Flathead National Forest, Lolo National Forest (Montana); St. Joe National

Forest (Idaho).

2. State of Montana: Department of Fish, Wildlife and Parks; Division of Forestry.

D. Easements, conservation restrictions, etc.: A conservation easement on 640 acres is currently being completed for the Monture Creek site (002), between The Nature Conservancy and the private landowner (Cora Barbour, Monture Ranch, Ovando, MT 59854).

10. Management practices and experience.

A. Habitat management.

1. Review of past management and land use experiences.
 - a. Grindelia howellii: As previously noted, the species occurs frequently in areas disturbed by logging, road building and maintenance, grazing, and possibly herbicide spraying; no information is available regarding management activities specifically carried out for Grindelia howellii.
 - b. Related taxa: Grindelia squarrosa also frequently occurs in disturbed habitats; no specific management practices are known.
 - c. Other ecologically similar taxa: Not reviewed.
2. Performance under changed conditions: As previously noted, juveniles and mature plants of Grindelia howellii survive and reproduce well at many locations where habitat disturbance has occurred.
3. Current management policies and actions: Not reviewed in detail; the Holland Lake site (001) partially occurs within a marked timber sale area on the Flathead National Forest. Champion International lands are actively managed for grazing and timber harvesting.
4. Future land use: The area occupied by Grindelia howellii in Montana is very valuable for commercial timber production and livestock grazing. It is anticipated that these activities will continue in the future.

B. Cultivation.

1. **Controlled propagation techniques:** No experience; propagation by seed may be possible.
2. **Ease of transplanting:** No experience.
3. **Pertinent horticultural knowledge:** Not reviewed.
4. **Status and location of presently cultivated material:** No cultivated material known.

11. Evidence of threats to survival.

A. Present or threatened destruction, modification, or curtailment of habitat or range.

1. **Past threats:** As noted on p. 8, eight previously known occurrences have apparently been extirpated as a result of highway maintenance activities; however, these were locations for single or a few individuals in many cases, and were probably mostly waifs. Heavy use and maintenance of the Clearwater Access site (011) probably caused the extirpation of the few plants originally present.
2. **Existing threats:** This is difficult to assess, owing to the ruderal response of Grindelia howellii at the majority of its locations. Logging and grazing activities undoubtedly destroy some plants, or perhaps populations, but the species is known to thrive in disturbed habitats, and it is likely that the species' abundance has increased in certain sites as a result (i.e., Mollet Park (020)).

A portion of the Holland Lake site (001) will likely be impacted by a timber sale which has been marked in the area.

3. **Potential threats:** Although habitat management for forestry and grazing is likely to continue, and individual sites may be altered or destroyed, Grindelia howellii can exist in disturbed and early seral areas. Over its range in Montana, the species appears to be one which can tolerate habitat disturbance.

- B. Overutilization for commercial, sporting, scientific, or educational purposes: No significant existing or potential threats known.
- C. Disease, predation, or grazing: No significant existing or potential threats known.
- D. Inadequacy of existing regulatory mechanisms: None known.
- E. Other natural or manmade factors: None known.

II. ASSESSMENT AND RECOMMENDATIONS

12. General assessment of vigor, trends, and status: Grindelia howellii is a species which tolerates habitat disturbance, and which is thriving at many of its locations. It occurs at 45 sites in a limited area in western Montana, and at two known sites in northern Idaho. Though of limited distribution, its ruderal response has apparently allowed it to survive despite habitat degradation, and in certain instances its abundance has increased as a result. The species is not currently threatened or endangered; however, site data for Grindelia howellii will be maintained in the Montana Natural Heritage Program data base. It should be emphasized that many of the roadside populations are possibly ephemeral, and future field studies of populations should be conducted in order to further assess the long-term trends in the species' status.
13. Recommendations for listing or status change.
 - A. Recommendation to U.S. Fish and Wildlife Service: On the basis of information collected during the 1986 status survey and reported herein, it is recommended that Grindelia howellii be retained in Category 2. Though the species does not appear to be currently threatened or endangered, and is more abundant than previously believed, it occurs in a limited geographic area. In addition, the approximate total number of known individuals is not great, and there are no data relating to population trends or persistence through time. A final recommendation could be made once complete trend data are available.
 - B. Recommendations to other U.S. Federal agencies.
 1. U.S. Forest Service: Grindelia howellii should be placed on the U.S.F.S. Region 1 sensitive plant species list. The species is endemic to Region 1, and the National Forests which contain populations should be made aware of its occurrence on their respective

lands. The Forest Management Act of 1976 requires that the U.S.F.S. manage habitat for all existing native and desired non-native plants, fish and wildlife in order to maintain viable populations. Grindelia howellii should be included in such management plans.

C. Other status recommendations.

1. Counties and local areas: No need for regulation at the county or other local levels of government is seen.
 2. States: A change of status from S2 (endangered in Montana) to S3 (threatened in Montana) has been made on the MTNHP list of plant species of special concern. The species should be retained in NHP category S1 (critically endangered) in Idaho.
 3. Other nations: Not pertinent.
 4. International: Not pertinent.
14. Recommended critical habitat: Because Grindelia howellii does not currently appear to be threatened or endangered, critical habitat is not being recommended at this time.
15. Conservation/recovery recommendations.
- A. General conservation recommendations.
1. Recommendations regarding present or anticipated activities: Owing to the ruderal response of many of the populations, no recommendations regarding present or anticipated activities are currently being made.
 2. Areas recommended for protection: Owing to the scarcity of sites which occur in native or semi-native communities, the Cottonwood Creek site (040) was nominated as a potential natural area at the October 1986 Montana Natural Areas Conference. The highest quality portions of this site are on the state-owned Blackfoot-Clearwater Wildlife Management Area.
 3. Habitat management recommendations: No active management recommendations are being made at this time.

4. Publicity sensitivity: Low.

a. Other recommendations: None.

B. Monitoring activities and research needs.

1. Permanent monitoring plots should be established at several locations. The U.S. Forest Service should establish such study plots at the Holland Lake site (001), so that information on long-term population trends can start to be accumulated. Long-term studies would also be appropriate for the Cottonwood Creek site (040), as well as several of the roadside populations, so that trends and persistence of the latter may be better understood.
2. Periodic field-checking of as many populations as possible is strongly recommended. Population data will be retained in the Montana Natural Heritage Program data base, to provide an initial basis for future trend studies. This monitoring is necessary in order to note changes in status. Such studies should ideally be conducted every two to five years.
3. Further research on the biosystematic relationships of the species is needed. Especially useful would be studies addressing the degree of actual genetic divergence, i.e., with respect to G. squarrosa. Electrophoretic techniques, as well as experimental crossing, may be revealing.

16. Interested parties:

Office of Endangered Species
ATTN: Dr. Jim Miller
U.S. Fish and Wildlife Service
Region 6
P.O. Box 25486
Denver Federal Center
Denver, CO 80225

Endangered Species Field Office
ATTN: Carol Taylor
U.S. Fish and Wildlife Service
Federal Building, 301 South Park
P.O. Box 10023
Helena, MT 59626

Endangered Species Field Office
ATTN: Robert Parenti
U.S. Fish and Wildlife Service
4620 Overland Rd., Rm. 209
Boise, ID 83705

Office of Endangered Species
ATTN: Dr. John Fay
U.S. Fish and Wildlife Service
Washington, D.C. 20240

U.S. Forest Service, Region 1
ATTN: Bill Ruediger
Federal Building
P.O. Box 7669
Missoula, MT 59807

The Nature Conservancy
ATTN: Dr. Larry Morse
1800 N. Kent Street
Arlington, VA 22209

Rocky Mountain Heritage Task Force
ATTN: J. Scott Peterson
The Nature Conservancy
1370 Pennsylvania St., Suite 190
Denver, CO 80203

The Nature Conservancy
ATTN: Dr. Joan Bird
Montana/Wyoming Field Office
P.O. Box 258
Helena, MT 59624

Steve Caicco
Idaho Natural Heritage Program
4696 Overland Rd., Rm. 576
Boise, ID 83705

Peter Lesica
Department of Botany
University of Montana
Missoula, MT 59812

Dr. Kathleen Peterson
Department of Botany
University of Montana
Missoula, MT 59812

Dr. John Rumely
Department of Biology
Montana State University
Bozeman, MT 59717

J. Stephen Shelly
 Montana Natural Heritage Program
 State Library
 1515 E. 6th Avenue
 Helena, MT 59620

III. INFORMATION SOURCES

17. Sources of information.

A. Publications.

1. References cited in report: List appended (p. 80).
2. Other publications/sources:
 - a. Technical:

U.S. Fish and Wildlife Service. 1980.
 Review of status - Grindelia howellii.
 Unpublished report. 12 pp.

Watson, T.J. Date unknown. Status
 report - Grindelia howellii. Unpublished
 report. 11 pp.
 - b. Popular:

Gale, R. 1980. The riddle of existence:
 Montana's "rare plants." Montana
 Outdoors 11: 14-16.

B. Museum collections: Specimens were examined at a.) the University of Montana Herbarium (MONTU), Missoula, and b.) the Rocky Mountain Herbarium (RM), University of Wyoming, Laramie. Duplicates of some specimens at MONTU are housed at the Montana State University Herbarium (MONT), Bozeman, but these specimens were not examined. Voucher specimens collected during these status surveys are cited in the COMMENTS field of the computer printouts (Appendix A, p. 82). These specimens will all be deposited at MONTU. Previously collected specimens from Montana are cited in the COMMENTS or BESTSOURCE fields of these printouts.

C. Fieldwork.

1. Surveys by the author:

25-26 July, 28-31 July, 2-6 August, and
 20-22 August 1986: Surveys in Missoula and
 Powell counties; field notes, population
 surveys, photographs, and herbarium
 specimens.

2. Surveys by contractor:

14-18 August 1986: Surveys in Missoula County by George B. Chaffee, Montane Land Service, Clancy, MT; field notes, population surveys, and herbarium specimens.

D. Knowledgeable individuals.

George B. Chaffee
Montane Land Service
Box 361, Lump Gulch Rt.
Clancy, MT 59634

Ginger V. King
P.O. Box 9082
Helena, MT 59604

Peter Lesica
Department of Botany
University of Montana
Missoula, MT 59812

John Pierce
125 Brooks Street
Missoula, MT 59801

E. Other information sources: Color slides of additional populations are on file at the Montana Natural Heritage Program (author's address).

18. Summary of materials on file: All detailed field survey forms and field maps are on file at the MTNHP office (author's address). Nearly all items cited in this report are also on file at MTNHP.

IV. AUTHORSHIP

19. Initial authorship: J. Stephen Shelly
Montana Natural Heritage Program
State Library Building
1515 E. 6th Avenue
Helena, MT 59620

(406) 444-3009

20. Maintenance of status report: The Montana Natural Heritage Program will maintain current information, and update the status report as needed. Should the taxon ever be listed as an Endangered or Threatened species by the U.S. Fish and Wildlife Service, the Service, through its Office of Endangered Species (Region 6), should maintain the primary file of information on it, encourage others to provide new

information, and distribute new findings, as received, to the Interested Parties.

V. NEW INFORMATION

21. Record of revisions: Not currently applicable.

Literature cited

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- Endangered Species Act, The. 1983. U.S. Government Printing Office, Washington, D.C. 53 pp.
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- U.S. Department of Interior, Fish and Wildlife Service. 1975. Threatened or endangered fauna or flora; Review of status of vascular plants and determination of "critical habitat." Federal Register 40(127): 27824-27924.
- U.S. Department of Interior, Fish and Wildlife Service. 1980. Endangered and threatened wildlife and plants: Review of plant taxa for listing as endangered or threatened species. Federal Register 45(242): 82481-82569.
- U.S. Department of Interior, Fish and Wildlife Service. 1985. Endangered and threatened wildlife and plants: Review of plant taxa for listing as endangered or threatened species. Federal Register 50(188): 39526-39584.
- U.S. Geological Survey. 1980. Stream Evaluation Map, State of Montana. U.S. Government Printing Office, Washington, D.C. Two sheets.
- Visher, S.S. 1954. Climatic Atlas of the United States. Harvard University Press, Cambridge. 403 pp.
- Watson, Jr., T.J. 1976. An evaluation of putatively threatened or endangered species from the Montana flora. Report submitted to the U.S. Forest Service, Region 1. 31 pp.
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APPENDIX A: Computer printouts

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.001
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 5 TENTEN: 9,5 IDENT: Y EORANK: B
 EORANKCOMM: LARGE POPULATION, LIGHTLY DISTURBED SITE.
 SURVEYDATE: 1986-07-29 LASTOBS: 1986-07-29 FIRSTOBS: 1982 GRANK: G3
 SRANK: S3 STATE: MT COUNTYNAME: MTMISS
 QUADCODE: 4711346
 QUADNAME: CYGNET LAKE PRECISION: SC
 LAT: 472619 LONG: 1133843 S: 472616 N: 472623 E: 1133830 W: 1133852
 TOWNRANGE: 019N016W SECTION: 04 MERIDIAN: PR
 TRSCOMM: NE4NW4 PHYSPROV: NR WATERSHED: 17010211
 DIRECTIONS: NORTH SIDE OF HOLLAND LAKE ROAD, 1.2 MILES E. OF MONTANA ST.
 HWY. 83.

GENDESC: GRAVELLY LOAM, LOAM SOILS; OPENING SURROUNDED BY PINUS
 PONDEROSA FOREST, IN FLAT TO CONCAVE GRAZED MEADOW; WITH
 CENTAUREA MACULOSA, PHLEUM PRATENSE, BALSAMORHIZA, ASTER.

ESTV: 4000 SIZE: 5
 ESTDATA: EST. 1500-2000 INDIVIDUALS; GOOD SEEDLING ESTABLISHMENT; A
 PORTION OF THE SITE IS WITHIN A TIMBER SALE AREA; HIGHLY
 VARIABLE POPULATION, WITH NUMEROUS INDIVIDUALS HAVING
 FEATURES OF G. SQUARROSA.

COMMENTS: VOUCHERS-SHELLY, J.S. (1268, 1271 (INTERMEDIATE)) AND G.V.
 KING, 1986, MONTU.

MACODE1: MTFFSNFFLAT1 CONTAINED1: Y MACODE2: CONTAINED2:
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME: HOLLAND LAKE
 OWNER:
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM: -

BESTSOURCE: SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS.
 OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.

SOURCECODE: F86SHE08MT PND SHE01MT S86SHEUMMT A34STE02MT PNDPIE01MT
 S82PIEUMMT

DATASENS: N BOUNDARIES: Y PHOTOS: Y OWNERINFO:
 TRANSCRIBR: 85-10-29 JSS CDREV: Y MAPPER: 85-12-17 JSS QC: Y
 UPDATE: 86-09-25 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.002
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 1 TENTEN: 4,6 IDENT: Y EORANK: BC
 EORANKCOMM: MODERATE-SIZED POPULATION, GRAZED PRIVATE RANCH LAND.
 SURVEYDATE: 1986-08-05 LASTOBS: 1986-08-05 FIRSTOBS: 1976 GRANK: G3
 SRANK: S3 STATE: MT COUNTYNAME: MTPOWE
 QUADCODE: 4711312
 QUADNAME: OVANDO PRECISION: SC
 LAT: 470258 LONG: 1131146 S: 470237 N: 470301 E: 1131143 W: 1131150
 TOWNRANGE: 015N013W SECTION: 13 MERIDIAN: PR
 TRSCOMM: SW4,14SE4,23NE4,24NW PHYSPROV: NR WATERSHED: 17010203
 DIRECTIONS: FROM OVANDO, WEST ON HWY. 200 FOR 3 MI., TO DIRT ROAD ABOUT
 0.3 MI. WEST OF BRIDGE OVER MONTURE CREEK; SITE IS ALONG
 ROAD 0.4 MI. NORTH OF HWY.
 GENDESC: LOAM, GRAVELLY LOAM SOILS; ALONG ROAD, IN HAY MEADOW, AND
 NATIVE RANGE ON ROLLING BENCHLAND ABOVE CREEK BOTTOM; WITH
 FESTUCA SCABRELLA, CENTAUREA MACULOSA, VERBASCUM THAPSUS.
 FEV: 4080 SIZE: 10
 DATA: CA. 100-150 PLANTS, FLOWER AND FRUIT; PLANTS OCCUR ALONG
 ROAD AND IN ADJACENT MEADOWS; POSTED PRIVATE LAND, SITE WAS
 NOT COMPLETELY SURVEYED.
 COMMENTS: VOUCHER-SHELLY, J.S. (1300), 1986, MONTU.
 MACODE1: MTPRIVATEOWN CONTAINED1: ? MACODE2: CONTAINED2:
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME: MONTURE CREEK
 OWNER: CORA BARBOUR
 OWNERCOMM: MONTURE RANCH, OVANDO, MT 59854
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM: -
 BESTSOURCE: SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS.
 OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.
 SOURCECODE: F86SHE08MT PNDSE01MT S86SHEUMMT A34STE02MT PNDMCA01MT
 UNDWAT01MT
 DATASENS: N BOUNDARIES: Y PHOTOS: N OWNERINFO:
 TRANSCRIBR: 85-10-29 JSS CDREV: Y MAPPER: 85-12-17 JSS QC: Y
 UPDATE: 86-10-06 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.003
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 1 TENTEN: 9,9 IDENT: Y EORANK:
 EORANKCOMM:
 SURVEYDATE: 1986-07-31 LASTOBS: 1982- FIRSTOBS: 1971 GRANK: G3
 SRANK: S3 STATE: MT COUNTYNAME: MTMISS
 QUADCODE: 4711314
 QUADNAME: SALMON LAKE PRECISION: M
 LAT: 470111 LONG: 1132325 S: 0 N: 0 E: 0 W: 0
 TOWNRANGE: 015N014W SECTION: 29 MERIDIAN: PR
 TRSCOMM: SE4 PHYSPROV: NR WATERSHED: 17010203
 DIRECTIONS: CLEARWATER RIVER, 0.3 MI. W. OF BLANCHARD LAKE, 12.1 MI.
 SSE. OF SEELEY LAKE POST OFFICE.

GENDESC: LEVEL RIVER TERRACE, IN FESCUE GRASSLAND WITH FESTUCA
 SCABRELLA AND POTENTILLA GRACILIS.

ELEV: 3800 SIZE: 0
 ECDATA: SCARCE.

COMMENTS: TNC FIELD CHECKED IN 1982; NOT LOCATED DURING 1986 STATUS
 SURVEY; FIELD TOPO (MTNHP) OUTLINES AREA SURVEYED IN 1986.
 MACODE1: MTSFWWMBLAC2 CONTAINED1: Y MACODE2: CONTAINED2:
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME: BLANCHARD LAKE
 OWNER:
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM: SITE IS LOCATED IN BLACKFOOT-CLEARWATER WILDLIFE MGMT. AREA.
 MONITOR: MONITORNUM: -
 BESTSOURCE: STICKNEY, P.F. (2347), 1971, RM (479143), MONT.

SOURCECODE: S71STIRMMT S71STIMSMT PNDSTI01MT PNDLES01MT PNDSEH01MT

DATASENS: N BOUNDARIES: PHOTOS: N OWNERINFO:
 TRANSCRIBR: 85-10-28 JSS CDREV: Y MAPPER: 85-12-17 JSS QC: Y
 UPDATE: 86-09-24 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.004
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 1 TENTEN: 3,2 IDENT: Y EORANK:
 EORANKCOMM:
 SURVEYDATE: 1967-08-16 LASTOBS: 1967-07-18 FIRSTOBS: 1967 GRANK: 63
 SRANK: S3 STATE: MT COUNTYNAME: MTMISS
 QUADCODE: 4611386
 QUADNAME: SUNFLOWER MOUNTAIN PRECISION: M
 LAT: 465819 LONG: 1134226 S: 0 N: 0 E: 0 W: 0
 TOWNRANGE: 014N017W SECTION: 14 MERIDIAN: PR
 TRSCOMM: E2 PHYSPROV: NR WATERSHED: 17010203
 DIRECTIONS: JOCKO MOUNTAINS, GOLD CREEK WATERSHED, 2 MILES WEST OF
 SUNFLOWER MOUNTAIN, 9 MILES NW. OF POTOMAC; CORA ROAD 1 MI.
 FROM JCT. WITH MAIN GOLD CREEK ROAD.
 GENDESC: ALONG LOGGING ROAD IN DOUGLAS FIR FOREST ZONE, EASTERLY
 EXPOSURE; 0 AND 60% SLOPE.
 EV: 4800 SIZE: 0
 EODATA: SCARCE (2 AGGREGATES OF CA. 10 PLANTS EACH 0.1 MI. APART);
 ROADSIDE RUDERAL; RAYS YELLOW, STEMS AND LEAVES RESINOUS,
 PUNGENT ODOR, STOUT TAPROOT; STICKNEY (PERS. COMM.) STATED
 THAT HE HAS NOT BEEN ABLE TO RELOCATE THESE PLANTS AGAIN.
 COMMENTS: SPECIMEN DETERMINED BY CHARLES FEDDEMA, 1968; SITE NOT
 RELOCATED DURING 1986 STATUS SURVEYS (G. CHAFFEE).
 MACODE1: MTPCHAMPIONI CONTAINED1: ? MACODE2: CONTAINED2:
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME: SUNFLOWER MOUNTAIN
 OWNER: CHAMPION INTERNATIONAL, INC.
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM: -
 BESTSOURCE: STICKNEY, P.F. (1469), 1967, MONTU (71705), RM (479145),
 MONT.
 SOURCECODE: S67STIUMMT S67STIRMMT S67STIMSMT PNDSTI01MT PNDCHA01MT
 DATASENS: N BOUNDARIES: PHOTOS: N OWNERINFO:
 TRANSCRIBR: 85-10-30 JSS CDREV: Y MAPPER: 85-12-17 JSS OC: Y
 UPDATE: 86-09-24 JSS

ELEMENT OCCURRENCE RECORD

ECCODE: PDAST470E0.005
NAME: GRINDELIA HOWELLII
COMNAME: HOWELL'S GUM-WEED
MARGNUM: 2 TENTEN: 1,6 IDENT: Y EORANK:
EORANKCOMM: SMALL POPULATION, UNDISTURBED NATIVE HABITAT.
SURVEYDATE: 1986-07-31 LASTOBS: 1986-07-31 FIRSTOBS: 198
SRANK: S3 STATE: MT COUNTYNAME: MTMISS
QUADCODE: 4711313
QUADNAME: WOODWORTH PRECISI
LAT: 470244 LONG: 1132213 S: 0 N: 0 E:
TOWNRANGE: 015N014W SECTION: 21 MERIDIAN: PR
TRSCOMM: NE4 PHYSPROV: NR WATERSH
DIRECTIONS: BLANCHARD FLATS, BLACKFOOT-CLEARWATER WILDLIFE MA
AREA, CA. 3.0 AIR MI. DIRECTLY NORTH OF CLEARWATE
ADJACENT TO POWER LINE.
GENDESC: ON SLOPE ALONG A MOIST DRAW NEXT TO A SLOUGH; WITH G
VISCOSISSIMUM, FESTUCA SCABRELLA, SOLIDAGO MISSOURIE
ROSA SP., VERBASCUM THAPSUS, ACHILLEA MILLEFOLIUM, M
ELEV: 4200 SIZE: 1
EODATA: 14 PLANTS COUNTED, FLOWER AND FRUIT.

COMMENTS: VOUCHER-PIERCE, J. (1167), 1983, MONTU (092259).

MACODE1: MTSFWWMBLAC2 CONTAINED1: Y MACODE2: MTSSLGNXXX1
MACODE3: CONTAINED3: ADLMAS: MORELAN:
MOREMGMT: SITECODE:
SITENAME: BLANCHARD FLATS
OWNER:
OWNERCOMM:
PROTCOMM: SITE IS IN BLACKFOOT-CLEARWATER WILDLIFE MANAGEMENT
MGMTCOMM:
MONITOR: MONITORNUM:
BESTSOURCE: SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND I
OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUG
SOURCECODE: F86SHE08MT PNDSEHE01MT S86PIEUMMT PNDPIE01MT A34STI
DATASENS: N BOUNDARIES: Y PHOTOS: Y OWNERINFO:
TRANSCRIBR: 85-11-08 JSS CDREV: Y MAPPER: 86-01-08 JS
UPDATE: 86-09-25 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.006
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 12 TENTEN: 1,2 IDENT: Y EORANK: D
 EORANKCOMM: SMALL, ROADSIDE POPULATION.
 SURVEYDATE: 1986-07-30 LASTOBS: 1986-07-30 FIRSTOBS: 1966 GRANK: 63
 SRANK: S3 STATE: MT COUNTYNAME: MTMISS
 QUADCODE: 4711314
 QUADNAME: SALMON LAKE PRECISION: SC
 LAT: 470635 LONG: 1132947 S: 0 N: 0 E: 0 W: 0
 TOWNRANGE: 016N015W SECTION: 28 MERIDIAN: PR
 TRSCOMM: SE4 PHYSPROV: NR WATERSHED: 17010203
 DIRECTIONS: ALONG VAUGHN CREEK RD. (LOLO N.F. RD. 4337), JUST S. OF
 BRIDGE OVER OWL CREEK, AT TURN-OFF TO OLD RANCH (WILBER
 VAUGHN RANCH).
 GENDESC: DRY, ROCKY ROADSIDE, IN PINUS PONDEROSA FOREST.

REV: 4100 SIZE: 0
 EODATA: 9 PLANTS COUNTED DURING 1986 SURVEYS; THE WOODLAND
 COLLECTIONS WERE THE FIRST RECORDS FOR MONTANA.

COMMENTS: SPECIMENS VERIFIED BY A. CRONQUIST; WOODLAND, D.W. (827,
 906), 1966, MONTU (60354, 60353).

MACODE1: MTSFWWMBLAC2 CONTAINED1: Y MACODE2: MTPCHAMPIONI CONTAINED2: Y
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME: VAUGHN RANCH
 OWNER: CHAMPION INTERNATIONAL, INC.
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM: -

BESTSOURCE: SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS.
 OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.
 SOURCECODE: F86SHE08MT PND6SHE01MT A67W0001MT S66W000UMMT A34STE02MT

DATASENS: N BOUNDARIES: Y PHOTOS: N OWNERINFO:
 TRANSCRIBR: 85-11-08 JSS CDREV: Y MAPPER: 86-01-08 JSS QC: Y
 UPDATE: 86-10-06 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.007
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 2 TENTEN: 7,7 IDENT: Y EORANK:
 EORANKCOMM:
 SURVEYDATE: 1986-08-16 LASTOBS: 1982-08-14 FIRSTOBS: 1982 GRANK: 63
 SRANK: S3 STATE: MT COUNTYNAME: MTMISS
 QUADCODE: 4611386
 QUADNAME: SUNFLOWER MOUNTAIN PRECISION: M
 LAT: 465446 LONG: 1133936 S: 0 N: 0 E: 0 W: 0
 TOWNRANGE: 013N016W SECTION: 06 MERIDIAN: PR
 TRSCOMM: SE4 PHYSPROV: NR WATERSHED: 17010203
 DIRECTIONS: HIGHWAY 200, A FEW HUNDRED FEET WEST OF THE DIAMOND MOUNTAIN
 ROAD AND ABOVE MCNAMARA'S LANDING, N. SIDE OF ROAD; ALSO
 BETWEEN MCNAMARA'S LANDING AND GREENOUGH.
 GENDESC: ON ROAD SHOULDER; SOIL: CRUSHED GRAVEL; WITH GRINDELIA
 SQUARROSA, CENTAUREA MACULOSA, VERBASCUM THAPSUS, BROMUS
 TECTORUM, PHLEUM PRATENSE, AND LACTUCA SERRIOLA.
 ELEV: 3500 SIZE: 0
 ECDATA: RARE; PIERCE (PERS. COMM.) STATED THAT HE HAS NOT SEEN THE
 PLANTS IN THIS AREA SINCE THE DATE OF THIS COLLECTION.
 COMMENTS: SPECIMEN LABEL READS "ALSO BETWEEN MCNAMARA'S LANDING AND
 GREENOUGH"; NOT SEEN DURING 1986 STATUS SURVEYS (G.CHAFFEE).
 MACODE1: MTPRIVATEOWN CONTAINED1: ? MACODE2: CONTAINED2:
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME: MCNAMARA BRIDGE
 OWNER: UNKNOWN
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM: -
 BESTSOURCE: PIERCE, J. (1149), 1982, MONTU (091190).
 SOURCECODE: S82PIEUMMT PNDPIE01MT PNDCHA01MT
 DATASENS: N BOUNDARIES: PHOTOS: N OWNERINFO:
 TRANSCRIBR: 85-11-08 JSS CDREV: Y MAPPER: 86-01-09 JSS QC: Y
 UPDATE: 86-09-24 JSS

ELEMENT OCCURRENCE RECORD

ECCODE: PDAST470E0.008
NAME: GRINDELIA HOWELLII
COMNAME: HOWELL'S GUM-WEED
MARGNUM: 2 TENTEN: 10,10 IDENT: Y EORANK:
EORANKCOMM:
SURVEYDATE: 1986-08-16 LASTOBS: 1983- FIRSTOBS: 1983-
SRANK: S3 STATE: MT COUNTYNAME: MTMISS
QUADCODE: 4611385
QUADNAME: POTOMAC PRECISIO
LAT: 465254 LONG: 1133048 S: 0 N: 0 E:
TOWNRANGE: 013N015W SECTION: 16 MERIDIAN: PR
TRSCOMM: BORDER OF 16&17,18+ PHYSPROV: NR WATERSHE
DIRECTIONS: ALSO T13NR16W:13,14; HIGHWAY 200, W. OF GREENOUGH,
OF UPPER POTOMAC TURN-OFF, N. SIDE OF ROAD.

GENDESC: ROAD SHOULDER, DISTURBED SITE, ON CRUSHED GRAVEL; WIT
MELILOTUS OFFICINALIS.

ELEV: 3860 SIZE: 0
EODATA: PLANTS ALSO OBSERVED ALONG HWY. 200, FOR CA. 3 MI. TO
WEST, IN 1983 (MAP ATTACHED; ROADSIDE OCCURRENCE SHOWN
THE POTOMAC QUAD); PIERCE (PERS. COMM.) STATED THAT HE
NOT SEEN THE PLANTS AT THIS SITE SINCE THIS COLLECTION
COMMENTS: SITE MAPPED WHERE COLLECTION WAS MADE; SITE NOT RELO
DURING 1986 STATUS SURVEYS (G. CHAFFEE).

MACODE1: MTPRIVATEOWN CONTAINED1: Y MACODE2:
MACODE3: CONTAINED3: ADLMAS: MORELAN:
MOREMGMT: SITECODE:
SITENAME: POTOMAC
OWNER: UNKNOWN
OWNERCOMM:
PROTCOMM:
MGMTCOMM:
MONITOR: MONITORNUM:
BESTSOURCE: PIERCE, J. (1120), 1982, MONTU.

SOURCECODE: S82PIEUMMT PNDPIE01MT PNDCHA01MT

DATASENS: N BOUNDARIES: PHOTOS: N OWNERINFO:
TRANSCRIBR: 85-11-08 JSS CDREV: Y MAPPER: 86-01-09 JSS
UPDATE: 86-09-24 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.009
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 2 TENTEN: 4,9 IDENT: Y EORANK:
 EORANKCOMM:
 SURVEYDATE: 1986-08-16 LASTOBS: 1983- FIRSTOBS: 1982 GRANK: 63
 SRANK: 53 STATE: MT COUNTYNAME: MTMISS
 QUADCODE: 4611387
 QUADNAME: BLUE POINT PRECISION: M
 LAT: 465322 LONG: 1134953 S: 0 N: 0 E: 0 W: 0
 TOWNRANGE: 013N018W SECTION: 14 MERIDIAN: PR
 TRSCOMM: NE4 PHYSPROV: NR WATERSHED: 17010203
 DIRECTIONS: HIGHWAY 200 ON NORTH ROAD SHOULDER, BLUE SLIDE, BY GUARD
 RAIL.

GENDESC: ROAD SHOULDER, DISTURBED SITE; WITH CENTAUREA MACULOSA AND
 LACTUCA SERRIOLA.

ELEV: 3320 SIZE: 0
 EODATA: ALSO SEEN IN 1983 ALONG HWY. 200 FOR CA. 0.5 MI. (APPARENTLY
 TO THE EAST OF THE COLLECTION SITE-SEE ATTACHED MAP); PLANT
 9 DM TALL WITH NO BASAL ROSETTE OF LEAVES; PIERCE (PERS.
 COMM.) HAS NOT SEEN PLANTS IN THIS AREA SINCE 1983.

COMMENTS: SITE NOT RELOCATED DURING 1986 STATUS SURVEYS (G. CHAFFEE).

MACODE1: MTPCHAMPIONI CONTAINED1: Y MACODE2: CONTAINED2:
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME: BLUE SLIDE
 OWNER: CHAMPION INTERNATIONAL, INC.
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM: -
 BESTSOURCE: PIERCE, J. (1150), 1982, MONTU (091171, 2 SHEETS).

SOURCECODE: S82PIEUMMT PNDPIE01MT PNDCHA01MT

DATASENS: N BOUNDARIES: PHOTOS: N OWNERINFO:
 TRANSCRIBR: 85-11-08 JSS CDREV: Y MAPPER: 86-01-09 JSS OC: Y
 UPDATE: 86-09-24 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.010
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 1 TENTEN: 3,8 IDENT: Y EORANK: D
 EORANKCOMM: SMALL POPULATION, DISTURBED HABITAT.
 SURVEYDATE: 1986-07-30 LASTOBS: 1986-07-30 FIRSTOBS: 1982
 SRANK: S3 STATE: MT COUNTYNAME: MTMISS
 QUADCODE: 4711324
 QUADNAME: SEELEY LAKE EAST
 LAT: 470853 LONG: 1132801 S: 470853 N: 470900 E: 113280 PRECISION
 TOWNRANGE: 016N015W SECTION: 14 MERIDIAN: PR
 TRSCOMM: NW4 PHYSPROV: NR WATERSHEI
 DIRECTIONS: CA. 1 MI. S. OF SEELEY LAKE, ALONG ST. HWY. 83 AND
 E. OF HWY., 0.2 MI. N. OF MORRELL CREEK.
 GENDESC: ON ROAD SHOULDER, AND IN MEADOW E. OF HIGHWAY, WITH
 CENTAUREA MACULOSA.
 ELEV: 4000 SIZE: 3
 EODATA: 14 PLANTS COUNTED, FLOWER AND FRUIT.
 COMMENTS: VOUCHERS-SHELLY, J.S. (1276) AND G.V. KING, 1986, MONTU
 PIERCE, J. (1124), 1982, MONTU (091191).
 MACODE1: MTPRIVATEOWN CONTAINED1: Y MACODE2:
 MACODE3: CONTAINED3: ADLMAS: MORELAN:
 MOREMGMT: SITECODE:
 SITENAME: SALMON-SEELEY ROAD
 OWNER: UNKNOWN
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR:
 BESTSOURCE: SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POW
 OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST
 SOURCECODE: F86SHE08MT PNDSEHE01MT S86SHEUMMT A34STE02MT S82PIEUMI
 PNDPIE01MT
 DATASENS: N BOUNDARIES: Y PHOTOS: N OWNERINFO: N
 TRANSCRIBR: 85-11-08 JSS CDREV: Y MAPPER: 86-01-09 JSS
 UPDATE: 86-09-25 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.011
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 3 TENTEN: 10,10 IDENT: Y EORANK: C
 EORANKCOMM: SMALL POPULATION.
 SURVEYDATE: 1986-08-03 LASTOBS: 1976-07-21 FIRSTOBS: 1976 GRANK: G3
 SRANK: S3 STATE: MT COUNTYNAME: MTMISS
 QUADCODE: 4711314 4611384
 QUADNAME: SALMON LAKE, GREENOUGH PRECISION: M
 LAT: 470000 LONG: 1132254 S: 0 N: 0 E: 0 W: 0
 TOWNRANGE: 014N014W SECTION: 04 MERIDIAN: PR
 TRSCOMM: NW4 PHYSPROV: NR WATERSHED: 17010203
 DIRECTIONS: FISHING ACCESS SITE ON THE CLEARWATER RIVER AT THE CROSSING
 OF MT. ST. HWY. 200.

GENDESC: ALONG THE FLOODPLAINS.

REV: 3820 SIZE: 1
 DATA: ONLY 5 PLANTS OBSERVED; NO PLANTS WERE FOUND IN 1986; THIS
 IS A HEAVILY USED, HEAVILY MAINTAINED AREA, AND THE FEW
 PLANTS WHICH WERE HERE ARE APPARENTLY EXTIRPATED.

COMMENTS: VOUCHER-WATSON, T.J. (1330), 1976, MONTU; SITE NOT RELOCATED
 DURING 1986 STATUS SURVEYS.
 MACODE1: MTSFWWMBLAC2 CONTAINED1: ? MACODE2: MTSSLSFCLEA1 CONTAINED2: Y
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME: CLEARWATER ACCESS
 OWNER:
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM: -
 BESTSOURCE: WATSON, JR., T.J. NO DATE. STATUS REPORT-GRINDELIA HOWELLII.
 UNPUBLISHED REPORT.
 SOURCECODE: UNDWAT01MT S76WATUMMT U80FWS01MT PNDSE01MT

DATASENS: N BOUNDARIES: PHOTOS: N OWNERINFO:
 TRANSCRIBR: 86-02-20 JSS CDREV: Y MAPPER: 86-02-21 JSS QC: Y
 UPDATE: 86-09-24 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.012
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 4 TENTEN: 1,6 IDENT: Y EORANK: C
 EORANKCOMM: SMALL POPULATION, ADJACENT TO GRAVEL ROADS.
 SURVEYDATE: 1986-07-25 LASTOBS: 1986-07-25 FIRSTOBS: 1976 GRANK: G3
 SRANK: S3 STATE: MT COUNTYNAME: MTPOWE
 QUADCODE: 4711311
 QUADNAME: OVANDO MOUNTAIN PRECISION: SC
 LAT: 470321 LONG: 1130714 S: 0 N: 0 E: 0 W: 0
 TOWNRANGE: 015N012W SECTION: 16 MERIDIAN: PR
 TRSCOMM: NW4SE4 PHYSPROV: NR WATERSHED: 17010203
 DIRECTIONS: ALONG GRAVEL ROAD CA. 2.5 AIR MI. N. OF OVANDO, CA. 1.5 AIR
 MI. W. OF MARTIN PARK, 2 AIR MI. SSW. OF MOLLET PARK.

GENDESC: BROWN LOAM SOILS; FESTUCA SCABRELLA GRASSLAND, NEAR EDGE OF
 PINUS PONDEROSA FOREST, WITH STIPA RICHARDSONII, CHRYSOPSIS
 VILLOSA, KOELERIA MACRANTHA, BALSAMORHIZA SAGITTATA.

FEV: 4260 SIZE: 2
 DATA: 42 PLANTS COUNTED; MOSTLY NEAR ROAD, WITH MUCH OF THE
 SURROUNDING, UNDISTURBED GRASSLAND NOT CONTAINING ANY
 INDIVIDUALS.

COMMENTS: VOUCHERS-SHELLY, J.S. (1260) AND G.V. KING, 1986, MONTU;
 WATSON, T.J. (1357), 1976, MONTU.

MACODE1: MTSSLGNXXXX1 CONTAINED1: Y MACODE2: CONTAINED2:
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME: JONES LAKE
 OWNER:
 OWNERCOMM:
 PROTCOMM: STATE LAND SECTION.
 MGMTCOMM:
 MONITOR: MONITORNUM: -

BESTSOURCE: SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS.
 OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST AND 20-22 AUGUST.

SOURCECODE: F86SHE08MT PNDSE01MT S86SHEUMMT A34STE02MT UNDWAT01MT
 S76WATUMMT U80FWS01MT

DATASENS: N BOUNDARIES: Y PHOTOS: Y OWNERINFO:
 TRANSCRIBR: 86-02-20 JSS CDREV: Y MAPPER: 86-02-21 JSS QC: Y
 UPDATE: 86-09-09 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.013
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 1 TENTEN: 10,7 IDENT: Y EORANK: D
 EORANKCOMM: SMALL POPULATION, DISTURBED HABITAT.
 SURVEYDATE: 1986-08-02 LASTOBS: 1986-08-02 FIRSTOBS: 1976 GRANK: G3
 SRANK: S3 STATE: MT COUNTYNAME: MTPOWE
 QUADCODE: 4711311
 QUADNAME: OVANDO MOUNTAIN PRECISION: SC
 LAT: 470237 LONG: 1130016 S: 470236 N: 470238 E: 1130013 W: 1130023
 TOWNRANGE: 015N011W SECTION: 21 MERIDIAN: PR
 TRSCOMM: SW4NW4 PHYSPROV: NR WATERSHED: 17010203
 DIRECTIONS: ON GRAVEL ROAD 0.9 AIR MI. ESE. OF E. END OF DONEY LAKE,
 WHERE RD. CROSSES SPRING CREEK, CA. 6 AIR MILES NE. OF
 OVANDO.
 GENDESC: GRAVELLY LOAM SOILS, ON ROADSIDE AND ON RIVER TERRACE; PINUS
 PONDEROSA/PSEUDOTSUGA MENZIESII IN SURROUNDING FOREST, WITH
 CIRSIUM ARVENSE, VERBASCUM THAPSUS, CENTAUREA MACULOSA.
 ELEV: 4260 SIZE: 3
 DATA: 49 PLANTS COUNTED, FLOWER AND FRUIT; PLANTS WERE NOT LOCATED
 FAR AWAY FROM THE ROADSIDE.

COMMENTS: VOUCHER-WATSON, T.J. (1359), 1976, MONTU.

MACODE1: MTPCHAMPIONI CONTAINED1: Y MACODE2: CONTAINED2:
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME: SPRING CREEK
 OWNER: UNKNOWN
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM: -
 BESTSOURCE: SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS.
 OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.
 SOURCECODE: F86SHE08MT PNDSE01MT A34STE02MT UNDWAT01MT S76WATUMMT
 U80FWS01MT
 DATASENS: N BOUNDARIES: Y PHOTOS: N OWNERINFO:
 TRANSCRIBR: 86-02-20 JSS CDREV: Y MAPPER: 86-02-21 JSS QC: Y
 UPDATE: 86-09-25 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.014
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 3 TENTEN: 10,8 IDENT: EORANK:
 EORANKCOMM:
 SURVEYDATE: 1986-08-16 LASTOBS: 1984- FIRSTOBS: 1984 GRANK: 63
 SRANK: 53 STATE: MT COUNTYNAME: MTMISS
 QUADCODE: 4611387
 QUADNAME: BLUE POINT PRECISION: M
 LAT: 465405 LONG: 1134513 S: 0 N: 0 E: 0 W: 0
 TOWNRANGE: 013N017W SECTION: 09 MERIDIAN: PR
 TRSCOMM: N2 PHYSPROV: NR WATERSHED: 17010203
 DIRECTIONS: ALONG ST. HWY. 200, CA. 0.2-0.7 MI. NE. OF ANGEVINE PARK
 PICNIC AREA, CA. 9 MI. W. OF POTOMAC.

GENDESC: ROADSIDE POPULATION.

REV: 3360 SIZE: 0
 DATA: UNKNOWN; PIERCE (PERS. COMM.) STATED THAT HE HAS NOT SEEN
 THE PLANTS IN THIS AREA SINCE THE FIRST OBSERVATION.

COMMENTS: ROADSIDE POPULATION OBSERVED BY J. PIERCE IN 1984; NO
 VOUCHER COLLECTED; SITES NOT RELOCATED DURING 1986 SURVEYS.
 MACODE1: MTPCHAMPION1 CONTAINED1: N MACODE2: MTPPRIVATEOWN CONTAINED2: N
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME: ANGEVINE
 OWNER: CHAMPION INTERNATIONAL, INC.
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM: -
 BESTSOURCE: PIERCE, JOHN. 125 BROOKS ST., MISSOULA, MT.

SOURCECODE: PNDPIE01MT PNDCHA01MT

DATASENS: N BOUNDARIES: PHOTOS: N OWNERINFO:
 TRANSCRIBR: 86-02-21 JSS CDREV: Y MAPPER: 86-02-21 JSS QC: Y
 UPDATE: 86-09-24 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.015
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 2 TENTEN: 4,8 IDENT: EORANK:
 EORANKCOMM:
 SURVEYDATE: 1986-08-16 LASTOBS: 1984- FIRSTOBS: 1984 GRANK: 63
 SRANK: S3 STATE: MT COUNTYNAME: MTMISS
 QUADCODE: 4611384
 QUADNAME: GREENOUGH PRECISION: M
 LAT: 465358 LONG: 1132710 S: 0 N: 0 E: 0 W: 0
 TOWNRANGE: 013N015W SECTION: 11 MERIDIAN: PR
 TRSCOMM: E2,12NW4 PHYSPROV: NR WATERSHED: 17010203
 DIRECTIONS: ALONG ST. HWY. 200 ADJACENT TO LUBRECHT CAMP (NORTH), CA.
 1-2 MI. SSW. OF GREENOUGH.

GENDESC: ROADSIDE POPULATION.

REV: 4000 SIZE: 0
 DATA: UNKNOWN; PIERCE (PERS. COMM.) STATED THAT HE HAS NOT SEEN
 THE PLANTS IN THIS AREA SINCE THE FIRST OBSERVATION.

COMMENTS: ROADSIDE POPULATION OBSERVED BY J. PIERCE IN 1984; NO
 VOUCHER COLLECTED; SITE NOT RELOCATED DURING 1986 SURVEYS.

MACODE1: MTSUMEFLUBR1 CONTAINED1: Y MACODE2: MTSSLSFCLEA1 CONTAINED2: ?
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:

MOREMGMT: SITECODE:

SITENAME: GREENOUGH ROADSIDE

OWNER:

OWNERCOMM: LUBRECHT STATE EXPERIMENTAL FOREST

PROTCOMM:

MGMTCOMM:

MONITOR:

MONITORNUM: -

BESTSOURCE: PIERCE, JOHN. 125 BROOKS ST., MISSOULA, MT.

SOURCECODE: PNDPIE01MT PNDCHA01MT

DATASENS: N BOUNDARIES: PHOTOS: N OWNERINFO:

TRANSCRIBR: 86-02-21 JSS CDREV: Y MAPPER: 86-02-21 JSS QC: Y

UPDATE: 86-10-07 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.016
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 6 TENTEN: 8,7 IDENT: EORANK:
 EORANKCOMM:
 SURVEYDATE: 1986-07-29 LASTOBS: 1984- FIRSTOBS: 1984 GRANK: 63
 SRANK: S3 STATE: MT COUNTYNAME: MTMISS
 QUADCODE: 4711346
 QUADNAME: CYGNET LAKE PRECISION: M
 LAT: 472453 LONG: 1133911 S: 0 N: 0 E: 0 W: 0
 TOWNRANGE: 019N016W SECTION: 09 MERIDIAN: PR
 TRSCOMM: 4,5,8,16,21; + PHYSPROV: NR WATERSHED: 17010211
 DIRECTIONS: ALSO T20NR16W: 32; ALONG ST. HWY. 83, FROM CA. 0.5 MI. S. OF
 PIERCE CREEK, TO CA. 0.3 MI. N. OF HOLLAND CREEK, AND
 HOLLAND CREEK, AND HOLLAND LAKE RD.CA.1.5 MI.E. FROM HWY.83.
 GENDESC: ROADSIDE POPULATIONS.

DEV: 4065 SIZE: 0
 DATA: UNKNOWN; SEE ELEMENT FILE FOR SOURCE MAP; PIERCE (PERS.
 COMM.) STATED THAT HE HAS NOT SEEN PLANTS IN THESE AREAS
 SINCE THE FIRST OBSERVATION.

COMMENTS: ROADSIDE POPULATIONS OBSERVED BY J. PIERCE IN 1984; NO
 VOUCHER COLLECTED; SITE NOT RELOCATED DURING 1986 SURVEYS.
 MACODE1: MTFFSNFFLAT1 CONTAINED1: N MACODE2: MTPBURLNORTH CONTAINED2: 1
 MACODE3: MTPPRIVATEOWN CONTAINED3: N ADLMAS: N MORELAN: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME: HOLLAND-PIERCE CREEK
 OWNER: PRIVATE OWNER UNKNOWN
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM: -
 BESTSOURCE: PIERCE, JOHN. 125 BROOKS ST., MISSOULA, MT.

SOURCECODE: PNDPIE01MT PNDSEH01MT

DATASENS: N BOUNDARIES: PHOTOS: N OWNERINFO:
 TRANSCRIBR: 86-02-21 JSS CDREV: Y MAPPER: 86-02-21 JSS QC: Y
 UPDATE: 86-09-24 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.017
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 1 TENTEN: 5,10 IDENT: EORANK:
 EORANKCOMM:
 SURVEYDATE: 1986-07-29 LASTOBS: 1984- FIRSTOBS: 1984 GRANK: G3
 SRANK: S3 STATE: MT COUNTYNAME: MTMISS
 QUADCODE: 4711356
 QUADNAME: CONDON PRECISION: M
 LAT: 473031 LONG: 1134121 S: 0 N: 0 E: 0 W: 0
 TOWNRANGE: 020N016W SECTION: 07 MERIDIAN: PR
 TRSCOMM: S2NW4,6SW4 PHYSPROV: NR WATERSHED: 17010211
 DIRECTIONS: ALONG ST. HWY. 83, CA. 1-2 MI. SE. OF CONDON.

GENDESC: ROADSIDE POPULATION.

REV: 3820 SIZE: 0
 DATA: UNKNOWN; PIERCE (PERS. COMM.) STATED THAT HE HAS NOT SEEN
 PLANTS IN THIS AREA SINCE THE FIRST OBSERVATION.

COMMENTS: ROADSIDE POPULATION OBSERVED BY J. PIERCE IN 1984; NO
 VOUCHER COLLECTED; SITE NOT RELOCATED DURING 1986 SURVEYS.
 MACODE1: MTPRIVATEOWN CONTAINED1: Y MACODE2: CONTAINED2:
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME: CONDON
 OWNER: UNKNOWN
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM: -
 BESTSOURCE: PIERCE, JOHN. 125 BROOKS ST., MISSOULA, MT.

SOURCECODE: PNDPIE01MT PNDSEHE01MT

DATASENS: N BOUNDARIES: PHOTOS: N OWNERINFO:
 TRANSCRIBR: 86-02-21 JSS CDREV: Y MAPPER: 86-02-21 JSS QC: Y
 UPDATE: 86-09-24 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.018
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 2 TENTEN: 1,6 IDENT: Y EORANK: CD
 EORANKCOMM: LARGE POPULATION, OCCURRING IN DISTURBED HABITAT.
 SURVEYDATE: 1986-07-25 LASTOBS: 1986-07-25 FIRSTOBS: 1986 GRANK: 63
 SRANK: 53 STATE: MT COUNTYNAME: MTPOWE
 QUADCODE: 4711311
 QUADNAME: OVANDO MOUNTAIN PRECISION: SC
 LAT: 470327 LONG: 1130651 S: 470326 N: 470328 E: 1130646 W: 1130656
 TOWNRANGE: 015N012W SECTION: 16 MERIDIAN: PR
 TRSCOMM: SE4SE4 PHYSPROV: NR WATERSHED: 17010203
 DIRECTIONS: BRIDGE OVER DICK CREEK, ALONG CHAMPION INT'L ROAD CA. 2.6
 AIR MILES NNE OF OVANDO, CA. 1 AIR MILE WEST OF MARTIN PARK.

GENDESC: ALONG ROAD IN FILL DIRT OVER CREEK; WITH PINUS PONDEROSA,
 PSEUDOTSUGA MENZIESII, VERBASCUM THAPSUS, CARDUUS NUTANS,
 LINARIA VULGARIS, CHRYSOPSIS VILLOSA.

ELEV: 4310 SIZE: 1
 DATA: CA. 150-200 PLANTS, MOSTLY IN FLOWER; SPECIES IS RESTRICTED
 TO DISTURBED SOIL AREAS, AND WAS NOT FOUND IN ADJACENT
 UNDISTURBED HABITAT.

COMMENTS: VOUCHER-SHELLY, J.S. (1261) AND G.V. KING, 1986, MONTU.

MACODE1: MTSSLGNXXX1 CONTAINED1: Y MACODE2: CONTAINED2:
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME: DICK CREEK
 OWNER:
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM:
 BESTSOURCE: SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL
 COS. OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST AND 20-22 AUGUST.
 SOURCECODE: F86SHE08MT PNDSEHE01MT S86SHEUMMT A34STE02MT

DATASENS: N BOUNDARIES: Y PHOTOS: Y OWNERINFO:
 TRANSCRIBR: 86-08-28 JSS CDREV: Y MAPPER: 86-08-28 JSS DC: Y
 UPDATE: 86-09-12 LWS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.019
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 3 TENTEN: 2,6 IDENT: Y EORANK: CD
 EORANKCOMM: LARGE ROADSIDE POPULATION
 SURVEYDATE: 1986-07-25 LASTOBS: 1986-07-25 FIRSTOBS: 1986 GRANK: 63
 SRANK: S3 STATE: MT COUNTYNAME: MTPOWE
 QUADCODE: 4711311
 QUADNAME: OVANDO MOUNTAIN PRECISION: SC
 LAT: 470252 LONG: 1130603 S: 470250 N: 470254 E: 1130602 W: 1130604
 TOWNRANGE: 015N012W SECTION: 22 MERIDIAN: PR
 TRSCOMM: N2N2 PHYSPROV: NR WATERSHED: 17010203
 DIRECTIONS: ALONG CHAMPION INTERNATIONAL LOGGING RD., CA. 2 AIR MILES
 NE OF OVANDO, 0.5 AIR MILES SW OF MARTIN PARK.

GENDESC: IN AND ALONG ROAD, GRAVELLY LOAM SOIL; WITH PINUS PONDEROSA/
 PSEUDOTSUGA MENZIESII (SECOND GROWTH), POTENTILLA GRACILIS,
 VERBASCUM THAPSUS, PHLEUM PRATENSE, CENTAUREA.

ELEV: 4380 SIZE: 2
 DATA: CA. 250-300 PLANTS, IN FLOWER AND EARLY FRUIT; SPECIES
 OCCURS AS A ROADSIDE RUDERAL, AND PLANTS WERE NOT FOUND AWAY
 FROM THE ROAD.

COMMENTS: VOUCHER-SHELLY, J.S. (1262) AND G.V. KING, 1986, MONTU.

MACODE1: MTPCHAMPIONI CONTAINED1: Y MACODE2: CONTAINED2:
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME: OVANDO-CHAMPION
 OWNER: CHAMPION INTERNATIONAL, INC.
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM:
 BESTSOURCE: SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS.
 OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.
 SOURCECODE: F86SHE08MT PNDSEHE01MT S86SHEUMMT A34STE02MT

DATASENS: N BOUNDARIES: Y PHOTOS: Y OWNERINFO:
 TRANSCRIBR: 86-08-29 JSS CDREV: Y MAPPER: 86-09-02 JSS QC: Y
 UPDATE: 86-09-12 LWS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.020
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 5 TENTEN: 2,3 IDENT: Y EORANK: CD
 EORANKCOMM: LARGE POPULATION, THRIVING IN A DISTURBED SITE.
 SURVEYDATE: 1986-07-26 LASTOBS: 1986-07-26 FIRSTOBS: 1986 GRANK: G3
 SRANK: S3 STATE: MT COUNTYNAME: MTPOWE
 QUADCODE: 4711311
 QUADNAME: OVANDO MOUNTAIN PRECISION: SC
 LAT: 470503 LONG: 1130626 S: 470456 N: 470510 E: 1130610 W: 1130638
 TOWNRANGE: 015N012W SECTION: 03 MERIDIAN: PR
 TRSCOMM: S2NW4,N2SW4 PHYSPROV: NR WATERSHED: 17010203
 DIRECTIONS: MOLLET PARK, CA. 4.5 AIR MI. NNE. OF OVANDO, CA. 3 AIR MI.
 WSW. OF OVANDO MOUNTAIN.

GENDESC: GRAVELLY LOAM SOILS, IN FURROWS OF A PLANTED PINUS PONDEROSA
 PLANTATION; WITH FESTUCA SCABRELLA, CENTAUREA MACULOSA,
 PHLEUM PRATENSE, VERBASCUM THAPSUS, POTENTILLA GRACILIS.

EV: 4585 SIZE: 19
 DATA: CA. 500-600 PLANTS, IN FLOWER; SPECIES DOES NOT OCCUR IN THE
 UNDISTURBED SOUTHERN PORTION OF THE NATIVE GRASSLAND IN
 MOLLET PARK, BUT IT IS ABUNDANT ALONG THE BOTTOMS OF THE
 FURROWS IN THE DISTURBED PINE PLANTATION.

COMMENTS: VOUCHER-SHELLY, J.S. (1263) AND G.V. KING, 1986, MONTU.

MACODE1: MTSFWWMBLAC2 CONTAINED1: N MACODE2: MTPCHAMPIONI CONTAINED2:
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:

MOREMGMT: SITECODE:

SITENAME: MOLLET PARK

OWNER: CHAMPION INTERNATIONAL, INC.

OWNERCOMM:

PROTCOMM:

MGMTCOMM:

MONITOR:

MONITORNUM:

BESTSOURCE: SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS.
 OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.

SOURCECODE: F86SHE08MT PNDSE01MT S86SHEUMMT A34STE02MT

DATASENS: N BOUNDARIES: Y PHOTOS: Y OWNERINFO:
 TRANSCRIBR: 86-08-29 JSS CDREV: Y MAPPER: 86-09-12 CDJ QC: Y
 UPDATE: 86-09-23 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.021
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 6 TENTEN: 2,4 IDENT: Y EORANK: D
 EORANKCOMM: SMALL POPULATION IN A DISTURBED SITE.
 SURVEYDATE: 1986-07-26 LASTOBS: 1986-07-26 FIRSTOBS: 1986 GRANK: 63
 SRANK: S3 STATE: MT COUNTYNAME: MTPOWE
 QUADCODE: 4711311
 QUADNAME: OVANDO MOUNTAIN PRECISION: SC
 LAT: 470438 LONG: 1130553 S: 470436 N: 470440 E: 1130534 W: 1130556
 TOWNRANGE: 015N012W SECTION: 10 MERIDIAN: PR
 TRSCOMM: N2NE4 PHYSPROV: NR WATERSHED: 17010203
 DIRECTIONS: ALONG LOGGING ROADS AT THE SE. END OF MOLLET PARK, CA. 4 AIR
 MI. NNE. OF OVANDO, CA. 2.7 AIR MI. WSW. OF OVANDO MOUNTAIN.

GENDESC: GRAVELLY LOAM SOIL; GRAZED, DISTURBED AREA IN SECOND GROWTH
 PINUS PONDEROSA PARKLAND; WITH FESTUCA SCABRELLA, PHLEUM
 PRATENSE, CARDUUS NUTANS, LINARIA VULGARIS.

ELEV: 4570 SIZE: 3
 DATA: TWO SUBPOPULATIONS, CA. 60-80 PLANTS (W. SITE) AND 10 PLANTS
 (E. SITE), FLOWER AND EARLY FRUIT; AREA IMPACTED BY LOGGING,
 GRAZING, AND ROAD CONSTRUCTION, BUT SPECIES OFTEN RESPONDS
 WELL TO DISTURBANCE.

COMMENTS: VOUCHER-SHELLY, J.S. (1264) AND G.V. KING, 1986, MONTU.

MACODE1: MTPCHAMPIONI CONTAINED1: Y MACODE2: CONTAINED2:
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME: MOLLET PARK SOUTH
 OWNER: CHAMPION INTERNATIONAL, INC.
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM:
 BESTSOURCE: SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS.
 OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.
 SOURCECODE: F86SHE08MT PNDSEHE01MT S86SHEUMMT A34STE02MT

DATASENS: N BOUNDARIES: Y PHOTOS: N OWNERINFO:
 TRANSCRIBR: 86-09-03 JSS CDREV: Y MAPPER: 86-09-12 CDJ QC: Y
 UPDATE: 86-09-23 JSS

ELEMENT OCCURRENCE RECORD

ECODE: PDAST470E0.022
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 7 TENTEN: 3,6 IDENT: Y EORANK: D
 EORANKCOMM: SMALL SUBPOPULATIONS, DISTURBED SITES.
 SURVEYDATE: 1986-07-26 LASTOBS: 1986-08-02 FIRSTOBS: 1986 GRANK: 63
 SRANK: 53 STATE: MT COUNTYNAME: MTPOWE
 QUADCODE: 4711311
 QUADNAME: OVANDO MOUNTAIN PRECISION: SC
 LAT: 470313 LONG: 1130526 S: 470300 N: 470318 E: 1130455 W: 1130528
 TOWNRANGE: 015N012W SECTION: 14 MERIDIAN: PR
 TRSCOMM: SW4;15E2SE4 PHYSPOV: NR WATERSHED: 17010203
 DIRECTIONS: SW. EDGE OF MARTIN PARK, AND ALONG ROADS NEAR WARREN CREEK
 E. OF THE PARK, CA. 2.5 AIR MI. NE OF OVANDO.

GENDESC: GRAVELLY LOAM SOIL; PINUS PONDEROSA/FESTUCA SCABRELLA, WITH
 PSEUDOTSUGA MENZIESII, PHLEUM PRATENSE, ACHILLEA
 MILLEFOLIUM, GERANIUM VISCOSISSIMUM, LITHOSPERMUM RUDERALE.

ELEV: 4460 SIZE: 8
 DATA: 50 PLANTS IN THREE SUBPOPULATIONS; PLANTS OCCUR ALONG EDGES
 OF LOGGING ROADS; AREA EAST OF WARREN CREEK IS HEAVILY
 GRAZED.

COMMENTS: VOUCHER-SHELLY, J.S. (1265) AND G.V. KING, 1986, MONTU.

MACODE1: MTPCHAMPIONI CONTAINED1: Y MACODE2: CONTAINED2:
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME: MARTIN PARK
 OWNER: CHAMPION INTERNATIONAL, INC.
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM:
 BESTSOURCE: SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS.
 OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.
 SOURCECODE: F86SHE08MT PNDSE01MT S86SHEUMMT A34STE02MT

DATASENS: N BOUNDARIES: Y PHOTOS: Y OWNERINFO:
 TRANSCRIBR: 86-09-03 JSS CDREV: Y MAPPER: 86-09-12 JSS QC: Y
 UPDATE: 86-09-23 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.023
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 8 TENTEN: 8,6 IDENT: Y EORANK: D
 EORANKCOMM: SMALL ROADSIDE POPULATION.
 SURVEYDATE: 1986-07-26 LASTOBS: 1986-07-26 FIRSTOBS: 1986
 SRANK: S3 STATE: MT COUNTYNAM: MTPOWE
 QUADCODE: 4711311
 QUADNAME: OVANDO MOUNTAIN
 LAT: 470252 LONG: 1130132 S: 470249 N: 470254 E: 11301
 TOWNRANGE: 015N011W SECTION: 20 MERIDIAN: PR
 TRSCOMM: NWNW4 PHYSPROV: NR WATERSHE
 DIRECTIONS: ALONG GRAVEL ROAD ON N. SIDE OF DONEY LAKE, CA. 1
 NW. OF N. FORK OF THE BLACKFOOT RIVER, CA. 5 AIR 1
 OF OVANDO.
 GENDESC: GRAVELLY LOAM SOIL; PINUS PONDEROSA/PSEUDOTSUGA MENZ
 WITH CENTAUREA MACULOSA, PHLEUM PRATENSE, ACHILLEA
 MILLEFOLIUM, ASTER SPP., MELILOTUS SPP.
 ELEV: 4460 SIZE: 2
 EODATA: 60 PLANTS, IN FLOWER; PLANTS OCCUR ALONG ROAD AND ON
 OF ROAD; NOT OBSERVED AWAY FROM ROADSIDE.

COMMENTS: VOUCHER-SHELLY, J.S. (1266) AND G.V. KING, 1986, MC

MACODE1: MTPCHAMPIONI CONTAINED1: Y MACODE2:
 MACODE3: CONTAINED3: ADLMAS: MORELAN:
 MOREMGMT: SITECODE:
 SITENAME: DONEY LAKE
 OWNER: CHAMPION INTERNATIONAL, INC.
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM:
 BESTSOURCE: SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA ANI
 OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AI
 SOURCECODE: FB6SHE08MT PNDSEHE01MT SB6SHEUMMT A34STE02MT

DATASENS: N BOUNDARIES: Y PHOTOS: N OWNERINFO:
 TRANSCRIBR: 86-09-04 JSS CDREV: Y MAPPER: 86-09-12
 UPDATE: 86-09-23 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.024
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 2 TENTEN: 9,4 IDENT: Y EORANK: D
 EORANKCOMM: SMALL POPULATION, DISTURBED SITE.
 SURVEYDATE: 1986-07-30 LASTOBS: 1986-07-30 FIRSTOBS: 1986
 SRANK: S3 STATE: MT COUNTYNAM: MTMISS
 QUADCODE: 4711315
 QUADNAME: BELMONT POINT
 LAT: 470503 LONG: 1133100 S: 0 N: 0 E: PRECISION
 TOWNRANGE: 015N015W SECTION: 05 MERIDIAN: PR
 TRSCOMM: SE4 PHYSPROV: NR WATERSHED
 DIRECTIONS: ALONG LOST PRAIRIE-PLACID ROAD, 1.65 AIR MILES S. O
 LAKE, CA. 0.2 AIR MILES SE. OF VAUGHN CREEK.
 GENDESC: CLAY LOAM SOILS; LARIX OCCIDENTALIS/PINUS CONTORTA/
 PSEUDOTSUGA MENZIESII, WITH CIRSIUM VULGARE, ACHILLEA
 MILLEFOLIUM, CAMPANULA ROTUNDIFOLIA, RUBUS PARVIFLORUS
 ELEV: 4600 SIZE: 1
 EODATA: 54 PLANTS, FLOWERS AND EARLY FRUIT; PLANTS OCCUR ON ROAI
 AND ON THE EDGE OF A CLEARCUT.
 COMMENTS: VOUCHER-SHELLY, J.S. (1277) AND G.V. KING, 1986, MONTL
 MACODE1: MTPCHAMPIONI CONTAINED1: Y MACODE2: MTFFSNFLOLO1
 MACODE3: CONTAINED3: ADLMAS: MORELAN:
 MOREMGMT: SITECODE:
 SITENAME: VAUGHN CREEK
 OWNER: CHAMPION INTERNATIONAL, INC.
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR:
 BESTSOURCE: SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWE
 OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.
 SOURCECODE: F86SHE08MT PNDSE01MT S86SHEUMMT A34STE02MT
 DATASENS: N BOUNDARIES: Y PHOTOS: Y OWNERINFO:
 TRANSCRIBR: 86-09-04 JSS CDREV: Y MAPPER: 86-09-15 CDJ
 UPDATE: 86-09-23 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.025
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 4 TENTEN: 1,3 IDENT: Y EORANK: D
 EORANKCOMM: SMALL POPULATION, DISTURBED SITE.
 SURVEYDATE: 1986-07-30 LASTOBS: 1986-07-30 FIRSTOBS: 1986 GRANK: 63
 SRANK: S3 STATE: MT COUNTYNAME: MTMISS
 QUADCODE: 4711314
 QUADNAME: SALMON LAKE
 LAT: 470518 LONG: 1132948 S: 0 N: 0 E: 0 W: 0
 TOWNRANGE: 015N015W SECTION: 04 MERIDIAN: PR
 TRSCOMM: NE4 PHYSPROV: NR WATERSHED: 17010203
 DIRECTIONS: ALONG LOST PRAIRIE-PLACID ROAD, 2 AIR MILES WNW. OF LOST
 PRAIRIE, 1.5 AIR MILES SOUTH OF OWL CREEK.

GENDESC: GRAVELLY LOAM SOILS; LARIX OCCIDENTALIS/PINUS CONTORTA/
 PSEUDOTSUGA MENZIESII, WITH ACHILLEA MILLEFOLIUM, CIRSIIUM
 VULGARE, POTENTILLA GRACILIS, CENTAUREA MACULOSA.
 ELEV: 4700 SIZE: 2
 EODATA: 45 PLANTS, IN FLOWER; PLANTS OCCUR RIGHT ALONG THE ROAD
 ONLY.

COMMENTS: VOUCHER-SHELLY, J.S. (1278) AND G.V. KING, 1986, MONTU.

MACODE1: MTPCHAMPIONI CONTAINED1: Y MACODE2: MTFFSNFLOLO1 CONTAINED2: Y
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPI
 MOREMGMT: SITECODE:

SITENAME: PLACID-LOST PRAIRIE ROAD
 OWNER: CHAMPION INTERNATIONAL, INC.
 OWNERCOMM:

PROTCOMM:

MGMTCOMM:

MONITOR:

BESTSOURCE:

SOURCECODE: F86SHE08MT PNDSE01MT S86SHEUMMT A34STE02MT
 MONITORNUM:

DATASENS: N BOUNDARIES: Y
 TRANSCRIBR: 86-09-04 JSS

UPDATE: 86-09-23 JSS

PHOTOS: Y OWNERINFO:
 CDREV: Y MAPPER: 86-09-15 CDJ QC:

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.026
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 5 TENTEN: 1,5 IDENT: Y EORANK: BC
 EORANKCOMM: LARGE POPULATION, AREA FORMERLY LOGGED.
 SURVEYDATE: 1986-07-30 LASTOBS: 1986-07-30 FIRSTOBS: 1986 GRANK: 63
 SRANK: 53 STATE: MT COUNTYNAME: MTMISS
 QUADCODE: 4711314
 QUADNAME: SALMON LAKE PRECISION: SC
 LAT: 470412 LONG: 1132937 S: 470409 N: 470417 E: 1132933 W: 1132941
 TOWNRANGE: 015N015W SECTION: 09 MERIDIAN: PR
 TRSCOMM: SE4 PHYSPROV: NR WATERSHED: 17010203
 DIRECTIONS: ALONG HORSEHEAD ROAD (CHAMPION INTERNATIONAL LOGGING ROAD),
 1.8 AIR MILES WSW. OF LOST PRAIRIE, CA. 2.8 AIR MILES SOUTH
 OF OWL CREEK.
 GENDESC: GRAVELLY LOAM SOILS; LARIX OCCIDENTALIS/PINUS CONTORTA/
 PSEUDOTSUGA MENZIESII, WITH VERBASCUM THAPSUS, PHLEUM
 PRATENSE, CIRSIUM VULGARE, CENTAUREA MACULOSA.
 REV: 4880 SIZE: 5
 EODATA: CA. 325-400 PLANTS, TWO SUBPOPULATIONS (250-300 AND 75-100),
 IN FLOWER; PLANTS OCCUR IN & ALONG A DIRT ROAD, WITH 1 CLUMP
 OF CA. 100 PLANTS IN AN UNUSED, OLD TRAIL; SMALLER NE.
 POPULATION IN ANOTHER OLD TRAIL.
 COMMENTS: VOUCHER-SHELLY, J.S. (1279) AND G.V. KING, 1986, MONTU.
 MACODE1: MTPCHAMPIONI CONTAINED1: Y MACODE2: MTFFSNFLOLO1 CONTAINED2: Y
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME: HORSEHEAD ROAD
 OWNER: CHAMPION INTERNATIONAL, INC.
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM:
 BESTSOURCE: SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS.
 OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.
 SOURCECODE: F86SHE08MT PNDSE01MT S86SHEUMMT A34STE02MT
 DATASENS: N BOUNDARIES: Y PHOTOS: Y OWNERINFO:
 TRANSCRIBR: 86-09-04 JSS CDREV: Y MAPPER: 86-09-15 CDJ OC: Y
 UPDATE: 86-09-23 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.027
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 6 TENTEN: 6,7 IDENT: Y EORANK: C
 EORANKCOMM: MODERATE-SIZED POPULATION; SERIOUS Knapweed INVASION.
 SURVEYDATE: 1986-07-31 LASTOBS: 1986-07-31 FIRSTOBS: 1986 GRANK: G3
 SRANK: S3 STATE: MT COUNTYNAME: MTMISS
 QUADCODE: 4711314
 QUADNAME: SALMON LAKE PRECISION: SC
 LAT: 470211 LONG: 1132501 S: 470208 N: 470213 E: 1132456 W: 1132505
 TOWNRANGE: 015N014W SECTION: 19 MERIDIAN: PR
 TRSCOMM: SW4SE4 PHYSPROV: NR WATERSHED: 17010203
 DIRECTIONS: ALONG LOST HORSE CREEK, 1.0 AIR MILES WNW. OF ITS CONFLUENCE
 WITH CLEARWATER RIVER, CA. 3.3 AIR MILES NW. OF CLEARWATER
 JUNCTION.
 GENDESC: GRAVELLY LOAM SOILS; PINUS PONDEROSA/FESTUCA SCABRELLA, WITH
 CENTAUREA MACULOSA, PHLEUM PRATENSE, HYPERICUM PERFORATUM,
 POTENTILLA GRACILIS.
 ELEV: 4000 SIZE: 3
 DATA: CA. 200-250 PLANTS, IN FLOWER AND EARLY FRUIT; WEED
 COMPETITION IS VERY SERIOUS (SPOTTED Knapweed), AND PLANTS
 ARE SMALLER AND APPEAR TO BE MORE FEEBLE, POSSIBLY AS A
 RESULT OF THIS COMPETITION.
 COMMENTS: VOUCHER-SHELLY, J.S. (1280) AND G.V. KING, 1986, MONTU.
 MACODE1: MTSFWWMBLAC1 CONTAINED1: Y MACODE2: MTSSLGNXXXX1 CONTAINED2: Y
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME: LOST HORSE CREEK
 OWNER:
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM:
 BESTSOURCE: SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS.
 OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.
 SOURCECODE: F86SHE08MT PNDSE01MT S86SHEUMMT A34STE02MT
 DATASENS: N BOUNDARIES: Y PHOTOS: Y OWNERINFO:
 TRANSCRIBR: 86-09-04 JSS CDREV: Y MAPPER: 86-09-15 CDJ QC: Y
 UPDATE: 86-09-23 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.028
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 7 TENTEN: 5,7 IDENT: Y EORANK: D
 EORANKCOMM: SMALL, ROADSIDE POPULATION; GRAZED AREA.
 SURVEYDATE: 1986-07-31 LASTOBS: 1986-07-31 FIRSTOBS: 1986 GRANK: G3
 SRANK: S3 STATE: MT COUNTYNAME: MTMISS
 QUADCODE: 4711314
 QUADNAME: SALMON LAKE PRECISION: SC
 LAT: 470221 LONG: 1132608 S: 0 N: 0 E: 0 W: 0
 TOWNRANGE: 015N015W SECTION: 24 MERIDIAN: PR
 TRSCOMM: S2SE4 PHYSPROV: NR WATERSHED: 17010203
 DIRECTIONS: ALONG CHAMPION INTERNATIONAL LOGGING ROAD, 0.34 AIR MILES
 SOUTH OF LOST HORSE CREEK, CA. 2 AIR MILES WEST OF
 CLEARWATER RIVER.
 GENDESC: LOAM SOILS; PINUS PONDEROSA/PSEUDOTSUGA MENZIESII/STIPA
 RICHARDSONII, WITH CARDUUS NUTANS, PHLEUM PRATENSE, GERANIUM
 VISCOSISSIMUM, POTENTILLA GRACILIS, VERBASCUM THAPSUS.
 REV: 4160 SIZE: 2
 EODATA: 45 MATURE PLANTS COUNTED, ROSETTES NOT COUNTED; ROAD BISECTS
 SITE, AND AREA IS GRAZED.

COMMENTS: VOUCHER-SHELLY, J.S. (1281) AND G.V. KING, 1986, MONTU.

MACODE1: MTFFSNFLOLO1 CONTAINED1: Y MACODE2: CONTAINED2:
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME: LOST HORSE ROAD
 OWNER:
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM:
 BESTSOURCE: SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS.
 OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.
 SOURCECODE: F86SHE08MT PND5SHE01MT S86SHEUMMT A34STE02MT

DATASENS: N BOUNDARIES: Y PHOTOS: N OWNERINFO:
 TRANSCRIBR: 86-09-05 JSS CDREV: Y MAPPER: 86-09-15 CDJ QC: Y
 UPDATE: 86-09-23 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.029
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 8 TENTEN: 3,6 IDENT: Y EORANK: E
 EORANKCOMM: MODERATE-SIZED POPULATION, PARTIALLY UNDISTURBED.
 SURVEYDATE: 1986-07-31 LASTOBS: 1986-07-31 FIRSTOBS: 1986
 SRANK: S3 STATE: MT COUNTYNAME: MTMISS
 QUADCODE: 4711314
 QUADNAME: SALMON LAKE
 LAT: 470249 LONG: 1132803 S: 0 N: 0 E: PRECISIO
 TOWNRANGE: 015N015W SECTION: 22 MERIDIAN: PR
 TRSCOMM: E2NE4,23W2NW4 PHYSPROV: NR WATERSHEI
 DIRECTIONS: ALONG CHAMPION INTERNATIONAL LOGGING ROAD, 0.8 AIR
 SOUTH OF LOST HORSE CREEK, 3.2 AIR MILES WEST OF EL
 CLEARWATER RIVER.
 GENDESC: GRAVELLY LOAM SOILS; PINUS PONDEROSA/PSEUDOTSUGA MENZ
 LARIX OCCIDENTALIS/PINUS CONTORTA, WITH POTENTILLA GRA
 VERBASCUM THAPSUS, CENTAUREA MACULOSA, ASTER.
 ELEV: 4660 SIZE: 2
 EODATA: 175 PLANTS COUNTED, BUT PROBABLY AT LEAST 200 PLANTS;
 INDIVIDUALS OCCUR LARGELY IN AND ALONG OLD LOGGING ROAD
 BUT CA.6 PLANTS OCCUR IN ADJACENT, LESS DISTURBED MEADO
 OPENING.
 COMMENTS: VOUCHER-SHELLY, J.S. (1282) AND G.V. KING, 1986, MONT
 MACODE1: MTPCHAMPIONI CONTAINED1: Y MACODE2: MTFFSNFLOLO1
 MACODE3: CONTAINED3: ADLMAS: MORELAN:
 MOREMGMT: SITECODE:
 SITENAME: LOST HORSE SPUR ROAD
 OWNER: CHAMPION INTERNATIONAL, INC.
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR:
 BESTSOURCE: SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POW
 OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST
 SOURCECODE: F86SHE08MT PNDSEHE01MT S86SHEUMMT A34STE02MT
 DATASENS: N BOUNDARIES: Y PHOTOS: N OWNERINFO:
 TRANSCRIBR: 86-09-05 JSS CDREV: Y MAPPER: 86-09-15 CDJ
 UPDATE: 86-09-23 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.030
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 9 TENTEN: 6,8 IDENT: Y EORANK: D
 EORANKCOMM: SMALL, ROADSIDE POPULATION.
 SURVEYDATE: 1986-07-31 LASTOBS: 1986-07-31 FIRSTOBS: 1986 GRANK: 63
 SRANK: 53 STATE: MT COUNTYNAME: MTMISS
 QUADCODE: 4711314
 QUADNAME: SALMON LAKE PRECISION: SC
 LAT: 470148 LONG: 1132533 S: 470146 N: 470155 E: 1132527 W: 1132540
 TOWNRANGE: 015N014W SECTION: 30 MERIDIAN: PR
 TRSCOMM: NW4 PHYSPROV: NR WATERSHED: 17010203
 DIRECTIONS: ALONG CHAMPION INTERNATIONAL LOGGING ROAD BETWEEN LOST HORSE
 CREEK AND BLANCHARD CREEK, 0.8-1.0 AIR MILES NORTH OF NORTH
 FORK BLANCHARD CREEK; 1.25 MILES WEST OF CLEARWATER ROAD.
 GENDESC: GRAVELLY LOAM SOILS; PINUS PONDEROSA/LARIX OCCIDENTALIS/
 PSEUDOTSUGA MENZIESII, WITH POPULUS TREMULOIDES, CARDUUS
 NUTANS, PHLEUM PRATENSE, CENTAUREA MACULOSA.
 EV: 4120 SIZE: 5
 EUDATA: 85 PLANTS COUNTED, IN FLOWER; PLANTS OCCUR MOSTLY ALONG ROAD
 MARGIN, WITH A FEW SCATTERED 20-30 FEET AWAY FROM THE ROAD;
 PLANTS ALSO SCATTERED ALONG ROAD NEAR LAKE TO THE SOUTH.
 COMMENTS: VOUCHER-SHELLY, J.S. (1283) AND G.V. KING, 1986, MONTU.
 MACODE1: MTPCHAMPIONI CONTAINED1: Y MACODE2: CONTAINED2:
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME: LOST HORSE-BLANCHARD ROAD
 OWNER: CHAMPION INTERNATIONAL, INC.
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM:
 BESTSOURCE: SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS.
 OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.
 SOURCECODE: F86SHE08MT PNDSE01MT S86SHEUMMT A34STE02MT
 DATASENS: N BOUNDARIES: Y PHOTOS: N OWNERINFO:
 TRANSCRIBR: 86-09-05 JSS CDREV: Y MAPPER: 86-09-15 CDJ QC: Y
 UPDATE: 86-09-23 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.031
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 6 TENTEN: 3,6 IDENT: Y EORANK: A
 EORANKCOMM: LARGE POPULATION OVER A LARGE, LIGHTLY DISTURBED AREA.
 SURVEYDATE: 1986-07-31 LASTOBS: 1986-07-31 FIRSTOBS: 1986 GRANK: 63
 SRANK: 53 STATE: MT COUNTYNAME: MTMISS
 QUADCODE: 4711313
 QUADNAME: WOODWORTH PRECISION: SC
 LAT: 470326 LONG: 1132004 S: 470254 N: 470352 E: 1131843 W: 1132114
 TOWNRANGE: 015N014W SECTION: 14 MERIDIAN: PR
 TRSCOMM: 12,13,15 PHYSPROV: NR WATERSHED: 17010203
 DIRECTIONS: BLACKFOOT-CLEARWATER WILDLIFE MANAGEMENT AREA, ALONG AND
 NORTH OF GRAVEL ROAD FROM ST. HWY 83 TO FISH AND GAME
 HEADQUARTERS, 2.5-3.5 MILES NORTH OF ST. HWY 200.
 GENDESC: LOAM AND GRAVELLY LOAM SOILS; PINUS PONDEROSA/PSEUDOTSUGA
 MENZIESII/LARIX OCCIDENTALIS, WITH PHLEUM PRATENSE,
 CENTAUREA MACULOSA, RHAMNUS ALNIFOLIA, VERBASCUM THAPSUS.
 ELEV: 4600 SIZE: 125
 EODATA: CA. 800-1000 PLANTS, IN FLOWER; SPECIES OCCURS THROUGHOUT A
 LARGE AREA, ALONG LITTLE-USED LOGGING TRAILS, AND IN
 FREQUENT CLUSTERS IN OPENINGS AND MEADOWS.
 COMMENTS: VOUCHER-SHELLY, J.S. (1284 A & B) AND G.V. KING, 1986,
 MONTU, RM.
 MACODE1: MTSFWWMBLAC2 CONTAINED1: Y MACODE2: MTSSLGNXXX1 CONTAINED2: 1
 MACODE3: MTPCHAMPIONI CONTAINED3: N ADLMAS: ? MORELAN: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME: BLANCHARD UPLANDS
 OWNER: CHAMPION INTERNATIONAL, INC.
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM:
 BESTSOURCE: SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS.
 OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.
 SOURCECODE: F86SHE08MT PNDSE01MT S86SHEUMMT S86SHERMMT A34STE02MT
 DATASENS: N BOUNDARIES: Y PHOTOS: Y OWNERINFO:
 TRANSCRIBR: 86-09-05 JSS CDREV: Y MAPPER: 86-09-15 CDJ QC: Y
 UPDATE: 86-09-23 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.032
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 2 TENTEN: 1,6 IDENT: Y EORANK: D
 EORANKCOMM: SMALL POPULATION, AREA DISTURBED IN THE PAST.
 SURVEYDATE: 1986-08-02 LASTOBS: 1986-08-02 FIRSTOBS: 1986
 SRANK: S3 STATE: MT COUNTYNAME: MTPOWE
 QUADCODE: 4711218
 QUADNAME: COOPERS LAKE
 LAT: 470314 LONG: 1125943 S: 470312 N: 470330 E: 112593 PRECISION
 TOWNRANGE: 015N011W SECTION: 16 MERIDIAN: PR
 TRSCOMM: CENTER PHYSPROV: NR WATERSHED
 DIRECTIONS: ADJACENT TO UNNAMED LAKE JUST EAST OF SPRING CREEK
 AND 1.0 AIR MILES NORTH OF NORTH FORK OF THE BLACKF
 RIVER, NEAR NW. EDGE OF KLEINSCHMIDT FLAT.
 GENDESC: LOAM SOILS; PINUS PONDEROSA/PSEUDOTSUGA MENZIESII/LARI
 OCCIDENTALIS, WITH CIRSIUM ARVENSE, LINARIA VULGARIS,
 VERBASCUM THAPSUS, ACHILLEA MILLEFOLIUM.
 ELEV: 4520 SIZE: 5
 EODATA: 16 PLANTS, 2 SMALL SUBPOPULATIONS; G. SQUARROSA OCCURS I
 THE ELEMENT ALONG THE OLD JEEP TRAIL IN S16S2; ONE PLAN
 SHOWING INTERMEDIATE FEATURES WAS COLLECTED HERE.
 COMMENTS: VOUCHER-SHELLY, J.S. (1287), 1986, MONTU.
 MACODE1: MTSSLGNXXXX1 CONTAINED1: Y MACODE2:
 MACODE3: CONTAINED3: ADLMAS: MORELAN:
 MOREMGMT: SITECODE:
 SITENAME: SPRING CREEK LAKE
 OWNER:
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR:
 BESTSOURCE: SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWI
 OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.
 SOURCECODE: F86SHE08MT PNDSE01MT S86SHEUMMT A34STE02MT
 DATASENS: N BOUNDARIES: Y PHOTOS: Y OWNERINFO:
 TRANSCRIBR: 86-09-08 JSS CDREV: Y MAPPER: 86-09-15 CDJ
 UPDATE: 86-09-23 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.033
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 9 TENTEN: 2,6 IDENT: Y EORANK: D
 EORANKCOMM: SMALL POPULATION, DISTURBED HABITAT.
 SURVEYDATE: 1986-08-03 LASTOBS: 1986-08-03 FIRSTOBS: 1986 GRANK: G3
 SRANK: S3 STATE: MT COUNTYNAME: MTPOWE
 QUADCODE: 4711311
 QUADNAME: OVANDO MOUNTAIN PRECISION: SC
 LAT: 470318 LONG: 1130622 S: 0 N: 0 E: 0 W: 0
 TOWNRANGE: 015N012W SECTION: 15 MERIDIAN: PR
 TRSCOMM: N2SW4 PHYSPROV: NR WATERSHED: 17010203
 DIRECTIONS: ALONG CHAMPION INTERNATIONAL LOGGING ROAD, CA. 2.5 AIR MILES
 NNE. OF OVANDO, CA. 0.75 MILES WEST OF MARTIN PARK; SIDE
 ROAD NOT SHOWN ON TOPO MAP.
 GENDESC: GRAVELLY LOAM SOILS; PINUS PONDEROSA/FESTUCA SCABRELLA, WITH
 POTENTILLA GRACILIS, VERBASCUM THAPSUS, MADIA GLOMERATA,
 PERIDERIDIA GAIRDNERI, ACHILLEA MILLEFOLIUM.
 REV: 4360 SIZE: 1
 DATA: 38 PLANTS COUNTED; PLANTS OCCUR ALONG LOGGING ROAD AND
 ADJACENT TO LOGGING SLASH PILES.
 COMMENTS: VOUCHER-SHELLY, J.S. (1288), 1986, MONTU.
 MACODE1: MTPCHAMPIONI CONTAINED1: Y MACODE2: CONTAINED2:
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME: DICK CREEK EAST
 OWNER: CHAMPION INTERNATIONAL, INC.
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM:
 BESTSOURCE: SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS.
 OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.
 SOURCECODE: F86SHE08MT PNDSE01MT S86SHEUMMT A34STE02MT
 DATASENS: N BOUNDARIES: Y PHOTOS: N OWNERINFO:
 TRANSCRIBR: 86-09-08 JSS CDREV: Y MAPPER: 86-09-12 CDJ QC: Y
 UPDATE: 86-09-23 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.034
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 1 TENTEN: 4,1 IDENT: Y EORANK: B
 EORANKCOMM: GOOD POPULATION, ESP. NEAR MEADOW IN LESS DISTURBED HABITAT.
 SURVEYDATE: 1986-08-03 LASTOBS: 1986-08-03 FIRSTOBS: 1986 GRANK: 63
 SRANK: S3 STATE: MT COUNTYNAME: MTPOWE
 QUADCODE: 4611382
 QUADNAME: CHAMBERLAIN MOUNTAIN PRECISION: SC
 LAT: 465941 LONG: 1131203 S: 465934 N: 465943 E: 1131200 W: 1131231
 TOWNRANGE: 014N013W SECTION: 02 MERIDIAN: PR
 TRSCOMM: S2SE4,SE4SW4 PHYSPROV: NR WATERSHED: 17010203
 DIRECTIONS: SOUTH OF THE BLACKFOOT RIVER, 0.3-0.65 AIR MILES NE. OF
 PEARSON CREEK, CA. 2.5 AIR MILES SE. OF SCOTTY BROWN BRIDGE.

GENDESC: BROWN LOAM SOILS; ROADSIDES AND OPENINGS, PINUS PONDEROSA/
 PSEUDOTSUGA MENZIESII/LARIX OCCIDENTALIS/FESTUCA SCABRELLA,
 WITH ARTEMISIA TRIDENTATA, POTENTILLA GRACILIS.

EOV: 4270 SIZE: 25
 EUDATA: 228 PLANTS COUNTED, 3 SUBPOPULATIONS (EST. 275-300 TOTAL
 INDIVIDUALS); BEST GROUP (157 PLANTS) IS ADJACENT TO A
 MEADOW IN SE4SE4, ALONG AN UNUSED JEEP TRAIL WHERE CENTAUREA
 MACULOSA IS SPARSE.

COMMENTS: VOUCHER-SHELLY, J.S. (1289), 1986, MONTU.

MACODE1: MTSSLGNXXX1 CONTAINED1: N MACODE2: MTPCHAMPIONI CONTAINED2: N
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME: PEARSON CREEK
 OWNER: CHAMPION INTERNATIONAL, INC.

OWNERCOMM:

PROTCOMM:

MGMTCOMM:

MONITOR:

MONITORNUM:

BESTSOURCE: SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS.
 OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.

SOURCECODE: F86SHE08MT PNDSEHE01MT S86SHEUMMT A34STE02MT

DATASENS: N BOUNDARIES: Y PHOTOS: N OWNERINFO:
 TRANSCRIBR: 86-09-08 JSS CDREV: Y MAPPER: 86-09-15 CDJ QC: Y
 UPDATE: 86-09-23 JSS

ELEMENT OCCURRENCE RECORD

EPCODE: PDAST470E0.035
NAME: GRINDELIA HOWELLII
COMNAME: HOWELL'S GUM-WEED
MARGNUM: 2 TENTEN: 8,3 IDENT: Y EORANK: D
EORANKCOMM: WEEDY, ROADSIDE POPULATION.
SURVEYDATE: 1986-08-03 LASTOBS: 1986-08-03 FIRSTOBS: 1986 C
SRANK: S3 STATE: MT COUNTYNAME: MTPOWE
QUADCODE: 4611382
QUADNAME: CHAMBERLAIN MOUNTAIN
LAT: 465808 LONG: 1130832 S: 0 N: 0 E: 0
TOWNRANGE: 014N012W SECTION: 17 MERIDIAN: PR
TRSCOMM: NW4SE4 PHYSPROV: NR WATERSHED:
DIRECTIONS: ALONG LOGGING ROAD ON SLOPE ABOVE (SW. OF) THE BLACKF
RIVER, 1.27 AIR MILES SSW. OF ITS CONFLUENCE WITH NOF
OF THE BLACKFOOT RIVER.
GENDESC: ROADSIDE, GRAVELLY LOAM SOILS; PSEUDOTSUGA MENZIESII/LAR
OCCIDENTALIS/PINUS CONTORTA/PINUS PONDEROSA, WITH CENTAU
MACULOSA, ACHILLEA MILLEFOLIUM, CARDUUS NUTANS, CIRSIUM.
ELEV: 4200 SIZE: 1
EODATA: 80 PLANTS COUNTED, IN FLOWER; PLANTS HAVE RATHER
AGGRESSIVELY INVADDED A PULL-OUT ALONG THE ROAD;
G. SQUARROSA IS ALSO PRESENT, AND SOME PLANTS ARE
INTERMEDIATE BETWEEN THE 2 SPECIES.
COMMENTS: VOUCHER-SHELLY, J.S. (1292), 1986, MONTU.
MACODE1: MTPCHAMPIONI CONTAINED1: Y MACODE2: C
MACODE3: CONTAINED3: ADLMAS: MORELAN:
MOREMGMT: SITECODE:
SITENAME: BLACKFOOT ROADSIDE
OWNER: CHAMPION INTERNATIONAL, INC.
OWNERCOMM:
PROTCOMM:
MGMTCOMM:
MONITOR: MONITORNUM:
BESTSOURCE: SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWEL
OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.
SOURCECODE: F86SHE08MT PNDSEH01MT S86SHEUMMT A34STE02MT
DATASENS: N BOUNDARIES: Y PHOTOS: Y OWNERINFO:
TRANSCRIBR: 86-09-09 JSS CDREV: Y MAPPER: 86-09-15 CDJ
UPDATE: 86-09-23 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.036
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 3 TENTEN: 6,2 IDENT: Y EORANK: D
 EORANKCOMM: SMALL ROADSIDE POPULATION, DISTURBED AREA.
 SURVEYDATE: 1986-08-03 LASTOBS: 1986-08-03 FIRSTOBS: 1986 GRANK: G3
 SRANK: S3 STATE: MT COUNTYNAME: MTPOWE
 QUADCODE: 4611382
 QUADNAME: CHAMBERLAIN MOUNTAIN PRECISION: SC
 LAT: 465902 LONG: 1131020 S: 0 N: 0 E: 0 W: 0
 TOWNRANGE: 014N012W SECTION: 07 MERIDIAN: PR
 TRSCOMM: SW4NW4 PHYSPROV: NR WATERSHED: 17010203
 DIRECTIONS: 0.63 AIR MILES SOUTH OF THE BLACKFOOT RIVER, 2.08 AIR MILES
 WEST OF ITS CONFLUENCE WITH NORTH FORK BLACKFOOT RIVER, CA.
 4 AIR MILES SOUTHEAST OF THE SCOTTY BROWN BRIDGE.
 GENDESC: GRAVELLY LOAM SOIL; LARIX OCCIDENTALIS/PSEUDOTSUGA
 MENZIESII, WITH CARDUUS NUTANS, VERBASCUM THAPSUS,
 TARAXACUM OFFICINALE, CENTAUREA MACULOSA.
 ELEV: 4260 SIZE: 1
 EODATA: 15 PLANTS COUNTED, LATE FLOWER AND FRUIT; PLANTS OCCUR AS A
 WEEDY, ROADSIDE POPULATION, AND WERE NOT FOUND AWAY FROM THE
 ROAD.
 COMMENTS: SIGHT RECORD, NO VOUCHER SPECIMEN COLLECTED.
 MACODE1: MTPCHAMPIONI CONTAINED1: Y MACODE2: CONTAINED2:
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME: BLACKFOOT ROADSIDE II
 OWNER: CHAMPION INTERNATIONAL, INC.
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM:
 BESTSOURCE: SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS.
 OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.
 SOURCECODE: F86SHE08MT PNDSE01MT A34STE02MT
 DATASENS: N BOUNDARIES: Y PHOTOS: Y OWNERINFO:
 TRANSCRIBR: 86-09-08 JSS CDREV: Y MAPPER: 86-09-15 CDJ QC: Y
 UPDATE: 86-09-23 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.037
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 7 TENTEN: 6,8 IDENT: Y EORANK: C
 EORANKCOMM: MODERATE-SIZED POPULATION, ALONG/NEAR OLD LOGGING ROADS.
 SURVEYDATE: 1986-08-04 LASTOBS: 1986-08-04 FIRSTOBS: 1986 GRANK: G3
 SRANK: S3 STATE: MT COUNTYNAME: MTPOWE MTMISS
 QUADCODE: 4711313
 QUADNAME: WOODWORTH PRECISION: SC
 LAT: 470159 LONG: 1131747 S: 470148 N: 470202 E: 1131734 W: 1131810
 TOWNRANGE: 015N013W SECTION: 30 MERIDIAN: PR
 TRSCOMM: NW4;T15NR14W:25NE4NE PHYSPROV: NR WATERSHED: 17010203
 DIRECTIONS: ALONG CHAMPION INTERNATIONAL LOGGING ROADS, 0.8 AIR MILES
 NORTH OF BLACKFOOT RIVER, CA. 4 AIR MILES ENE. OF CLEARWATER
 JUNCTION.
 GENDESC: LOAM, CLAY LOAM, GRAVELLY LOAM SOILS; PSEUDOTSUGA MENZIESII/
 PINUS PONDEROSA/LARIX OCCIDENTALIS, WITH CENTAUREA MACULOSA,
 CIRSIUM ARVENSE, PHLEUM PRATENSE, LINARIA VULGARIS, CARDUUS.
 ELEV: 4280 SIZE: 19
 QUOTA: 126 PLANTS COUNTED, IN FLOWER AND EARLY FRUIT; PLANTS TEND
 TO OCCUR ONLY RIGHT ALONG, AND IN, OLD LOGGING TRAILS;
 CLUMPS TEND TO OCCUR IN LOWER AREAS, WHICH MAY BE MOIST
 LONGER IN THE SEASON.
 COMMENTS: VOUCHER-SHELLY, J.S. (1293), 1986, MONTU.
 MACODE1: MTPCHAMPIONI CONTAINED1: Y MACODE2: MTSFWWMBLAC2 CONTAINED2: Y
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME: CHAMPION GAME RANGE ROAD
 OWNER: CHAMPION INTERNATIONAL, INC.
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM:
 BESTSOURCE: SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS.
 OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.
 SOURCECODE: F86SHE08MT PNDSEH01MT S86SHEUMMT A34STE02MT
 DATASENS: N BOUNDARIES: Y PHOTOS: Y OWNERINFO:
 TRANSCRIBR: 86-09-09 JSS CDREV: Y MAPPER: 86-09-15 CDJ OC: Y
 UPDATE: 86-09-23 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.038
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 2 TENTEN: 2,4 IDENT: Y EORANK: B
 EORANKCOMM: LARGER POPULATION, MOSTLY OCCURRING IN NATIVE HABITAT.
 SURVEYDATE: 1986-08-04 LASTOBS: 1986-08-04 FIRSTOBS: 1986 GRANK: G3
 SRANK: S3 STATE: MT COUNTYNAME: MTPOWE
 QUADCODE: 4711312
 QUADNAME: OVANDO PRECISION: SC
 LAT: 470422 LONG: 1131349 S: 470419 N: 470424 E: 1131334 W: 1131355
 TOWNRANGE: 015N013W SECTION: 10 MERIDIAN: PR
 TRSCOMM: SE4NW4,SW4NE4 PHYSPROV: NR WATERSHED: 17010203
 DIRECTIONS: CA. 0.1 AIR MILES SW. OF SW. END OF UPSATA LAKE ("OPSATA" ON
 USGS MAP), ALONG GRAVEL ROAD N. AND E. OF BLACKFOOT-
 CLEARWATER WILDLIFE MANAGEMENT AREA HEADQUARTERS.
 GENDESC: LOAM SOILS; FESTUCA SCABRELLA GRASSLAND, WITH PHLEUM
 PRATENSE, CENTAUREA MACULOSA, BROMUS INERMIS, HORDEUM
 JUBATUM, ACHILLEA MILLEFOLIUM, CIRSIUM ARVENSE.
 IV: 4120 SIZE: 8
 EODATA: CA. 250-300 PLANTS, IN FLOWER AND EARLY FRUIT; PLANTS FOUND
 ALONG FENCE LINES AND ROAD, AND ON POSTED PRIVATE LAND IN
 LIGHTLY GRAZED PASTURE.
 COMMENTS: VOUCHER-SHELLY, J.S. (1294), 1986, MONTU.
 MACODE1: MTPRIVATEOWN CONTAINED1: ? MACODE2: CONTAINED2:
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME: UPSATA LAKE
 OWNER: UNKNOWN
 OWNERCOMM: SITE IS ADJACENT TO A STATE FISHING ACCESS AREA.
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM:
 BESTSOURCE: SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS.
 OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.
 SOURCECODE: FB6SHE08MT PNDSEH01MT SB6SHEUMMT A34STE02MT
 DATASENS: N BOUNDARIES: Y PHOTOS: N OWNERINFO:
 TRANSCRIBR: 86-09-09 JSS CDREV: Y MAPPER: 86-09-15 CDJ QC: Y
 UPDATE: 86-09-23 JSS

ELEMENT OCCURRENCE RECORD

EPCODE: PDAST470E0.039
NAME: GRINDELIA HOWELLII
COMNAME: HOWELL'S GUM-WEED
MARGNUM: 5 TENTEN: 10,4 IDENT: Y EORANK: I
EORANKCOMM: LARGE POPULATIONS, IN MODERATELY GRAZED NATIVE RANGE
SURVEYDATE: 1986-08-04 LASTOBS: 1986-08-04 FIRSTOBS: 1986-08-04
SRANK: 53 STATE: MT COUNTYNAME: MTPOWE
QUADCODE: 4711313 4711312
QUADNAME: WOODWORTH, OVANDO
LAT: 470415 LONG: 1131508 S: 470413 N: 470435 E: 11314
TOWNRANGE: 015N013W SECTION: 09 MERIDIAN: PR
TRSCOMM: CENTER, NE4 PHYSPROV: NR WATERSHE
DIRECTIONS: ALONG GRAVEL ROAD TO UPSATA LAKE, 2.7-3.2 AIR MILE
ST. HWY. 200, CA. 1.6-2.1 RD. MILES NORTH AND EAST
W/ BLACKFOOT-CLEARWATER WILDLIFE MANAGEMENT AREA F
GENDESC: GRAVELLY LOAM SOILS, ALONG INTERMITTENT DRAINAGES AND
SIDE; FESTUCA SCABRELLA GRASSLAND, WITH CENTAUREA MAC
VERBASCUM THAPSUS, POTENTILLA GRACILIS, GERANIUM.
ELEV: 4120 SIZE: 7
EODATA: CA. 350-400 PLANTS OBSERVED, IN 3 SUBPOPULATIONS; FLOW
AND EARLY FRUIT; PLANTS OCCUR ALONG FENCES AND IN MODERATELY
GRAZED NATIVE RANGE; SOUTHERN SUBPOPULATION IS LARGEST
(350 PLANTS), OCCURRING BETWEEN LOW HILLS.
COMMENTS: VOUCHER-SHELLY, J.S. (1295), 1986, MONTU.

MACODE1: MTPRIVATEOWN CONTAINED1: Y MACODE2:
MACODE3: CONTAINED3: ADLMAS: MORELAN:
MOREMGMT: SITECODE:
SITENAME: UPSATA-WOODWORTH JUNCTION
OWNER: UNKNOWN
OWNERCOMM:
PROTCOMM:
MGMTCOMM:
MONITOR: MONITORNUM:
BESTSOURCE: SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND F
OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST
SOURCECODE: F86SHE08MT PND5SHE01MT S86SHEUMMT A34STE02MT

DATASENS: N BOUNDARIES: Y PHOTOS: N OWNERINFO:
TRANSCRIBER: 86-09-11 JSS CDREV: Y MAPPER: 86-09-15 CDJ
UPDATE: 86-09-23 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.040
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 8 TENTEN: 9,5 IDENT: Y EORANK: A
 EORANKCOMM: LARGE POPULATION, EXCELLENT HABITAT, BEST EO IN MONTANA.
 SURVEYDATE: 1986-08-04 LASTOBS: 1986-08-04 FIRSTOBS: 1986 GRANK: G3
 SRANK: S3 STATE: MT COUNTYNAME: MTPOWE
 QUADCODE: 4711313
 QUADNAME: WOODWORTH PRECISION: SC
 LAT: 470338 LONG: 1131542 S: 470302 N: 470349 E: 1131529 W: 1131550
 TOWNRANGE: 015N013W SECTION: 17 MERIDIAN: PR
 TRSCOMM: E2NE4,NE4SE4,16W2SW4 PHYSPROV: NR WATERSHED: 17010203
 DIRECTIONS: ALONG GRAVEL ROAD TO UPSATA LAKE, 0.1-0.6 AIR MILES EAST OF
 COTTONWOOD CREEK, CENTERED CA. 0.75 AIR MILES NE. OF BLACK-
 FOOT-CLEARWATER WILDLIFE MANAGEMENT AREA HEADQUARTERS.
 GENDESC: BROWN GRAVELLY LOAM; NATIVE FESTUCA SCABRELLA GRASSLAND, W/
 PSEUDOROEGNERIA SPICATA, CHRYSOPSIS VILLOSA, POTENTILLA GRA-
 CILIS, ANTENNARIA MICROPHYLLA, SOLIDAGO, LUPINUS, KOELERIA.
 ELEV: 4040 SIZE: 77
 EUDATA: CA. 1200-1400 PLANTS IN WILDLIFE MANAGEMENT AREA, CA. 400-
 500 PLANTS ON PRIVATE LAND EAST OF ROAD; THE MOST PLANTS ARE
 IN THE NORTHEAST CORNER OF S17, ON THE WILDLIFE MANAGEMENT
 AREA, WHERE MICROSITES ARE PROBABLY SOMEWHAT MOISTER.
 COMMENTS: VOUCHER-SHELLY, J.S. (1296), 1986, MONTU.
 MACODE1: MTSFWWMBLAC2 CONTAINED1: N MACODE2: MTSSLGNXXX1 CONTAINED2: N
 MACODE3: MTPRIVATEOWN CONTAINED3: N ADLMAS: N MORELAN: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME: COTTONWOOD CREEK
 OWNER: UNKNOWN
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM:
 BESTSOURCE: SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS.
 OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.
 SOURCECODE: F86SHE08MT PNDSEH01MT S86SHEUMMT A34STE02MT
 DATASENS: N BOUNDARIES: Y PHOTOS: Y OWNERINFO:
 TRANSCRIBR: 86-09-11 LWS CDREV: Y MAPPER: 86-09-15 CDJ QC: Y
 UPDATE: 86-09-23 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.041
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 9 TENTEN: 6,4 IDENT: Y EORANK: C
 EORANKCOMM: SMALLER POPULATION, HABITAT LIGHTLY DISTURBED BY LOGGING.
 SURVEYDATE: 1986-08-04 LASTOBS: 1986-08-04 FIRSTOBS: 1986 GRANK: 63
 SRANK: S3 STATE: MT COUNTYNAME: MTPOWE
 QUADCODE: 4711313
 QUADNAME: WOODWORTH PRECISION: SC
 LAT: 470421 LONG: 1131735 S: 470413 N: 470436 E: 1131721 W: 1131755
 TOWNRANGE: 015N013W SECTION: 07 MERIDIAN: PR
 TRSCOMM: NW4, CENTER PHYSPROV: NR WATERSHED: 17010203
 DIRECTIONS: ALONG AND NEAR OLD LOGGING TRAILS, CA. 1.5-2.0 AIR
 MILES NW. OF BLACKFOOT-CLEARWATER WILDLIFE MANAGEMENT
 AREA HEADQUARTERS, CA. 2.5 MILES SOUTH OF WOODWORTH.
 GENDESC: GRAVELLY LOAM, LOAM SOILS; PINUS PONDEROSA/LARIX
 OCCIDENTALIS/PSEUDOTSUGA MENZIESII, POPULUS TREMULOIDES,
 CENTAUREA MACULOSA, CIRSIIUM ARVENSE, FESTUCA SCABRELLA.
 ELEV: 4120 SIZE: 33
 EODATA: 68 PLANTS COUNTED, IN FLOWER; PLANTS OCCUR ALONG OLD LOGGING
 TRAILS, IN GRASSY OPENINGS, AND IN A SHADED THICKET.

COMMENTS: VOUCHER-SHELLY, J.S. (1297), 1986, MONTU.

MACODE1: MTPCHAMPIONI CONTAINED1: N MACODE2: MTSSLGNXXXX1 CONTAINED2: I
 MACODE3: MTSFWWMBLAC2 CONTAINED3: Y ADLMAS: N MORELAN: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME: BLACKFOOT BACKROADS
 OWNER: CHAMPION INTERNATIONAL, INC.
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM:
 BESTSOURCE: SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS.
 OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.
 SOURCECODE: F86SHE08MT PNDSEHE01MT S86SHEUMMT A34STE02MT

DATASENS: N BOUNDARIES: Y PHOTOS: N OWNERINFO:
 TRANSCRIBR: 86-09-11 JSS CDREV: Y MAPPER: 86-09-15 CDJ QC: Y
 UPDATE: 86-09-23 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.042
NAME: GRINDELIA HOWELLII
COMNAME: HOWELL'S GUM-WEED
MARGNUM: 10 TENTEN: 9,3 IDENT: Y EORANK: B
EORANKCOMM: LARGE POPULATION, ADJACENT AREAS LOGGED AND GRAZED
SURVEYDATE: 1986-08-05 LASTOBS: 1986-08-05 FIRSTOBS: 1986
SRANK: S3 STATE: MT COUNTYNAME: MTPOWE
QUADCODE: 4711313
QUADNAME: WOODWORTH
LAT: 470540 LONG: 1131543 S: 470532 N: 470555 E: 113155 PRECISION
TOWNRANGE: 016N013W SECTION: 32 MERIDIAN: PR
TRSCOMM: E2SE4,33SW4SW4 PHYSPROV: NR WATERSHEI
DIRECTIONS: ALONG WEST SIDE OF GRAVEL ROAD, CA. 2.1 AIR MILES E
WOODWORTH, CA. 3 AIR MILES NORTH OF BLACKFOOT-CLEAR
WILDLIFE MANAGEMENT AREA HEADQUARTERS.
GENDESC: BROWN LOAM SOILS; PINUS PONDEROSA SAVANNA, WITH PHLEUM
PRATENSE, VERBASCUM THAPSUS, CENTAUREA MACULOSA, CIRSI
ARVENSE, POPULUS TREMULOIDES, CARDUUS NUTANS.
ELEV: 4180 SIZE: 15
EODATA: CA. 500-600 PLANTS (MINIMUM), IN FLOWER AND EARLY FRUIT
PLANTS OCCUR IN GRASSY OPENINGS ON SW. SIDE OF ROAD, IN
DISTURBED HABITAT; NOT SEEN EAST OF ROAD, WHERE HABITAT
RECENTLY LOGGED.
COMMENTS: VOUCHER-SHELLY, J.S. (1298), 1986, MONTU.
MACODE1: MTPRIVATEOWN CONTAINED1: Y MACODE2:
MACODE3: CONTAINED3: ADLMAS: MORELAN:
MOREMGMT: SITECODE:
SITENAME: WOODWORTH
OWNER: UNKNOWN
OWNERCOMM:
PROTCOMM:
MGMTCOMM:
MONITOR:
BESTSOURCE: SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POW
OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST
SOURCECODE: F86SHE08MT PNDSEHE01MT S86SHEUMMT A34STE02MT
DATASENS: N BOUNDARIES: Y PHOTOS: N OWNERINFO:
TRANSCRIBR: 86-09-12 JSS CDREV: Y MAPPER: 86-09-15 CDJ
UPDATE: 86-09-23 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.043
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 3 TENTEN: 3,7 IDENT: Y EORANK: B
 EORANKCOMM: GOOD POPULATIONS, OCCURRING IN LARGELY UNDISTURBED AREAS.
 SURVEYDATE: 1986-08-05 LASTOBS: 1986-08-05 FIRSTOBS: 1986 GRANK: G3
 SRANK: S3 STATE: MT COUNTYNAME: MTPOWE
 QUADCODE: 4711312
 QUADNAME: OVANDO PRECISION: SC
 LAT: 470221 LONG: 1131314 S: 470204 N: 470223 E: 1131306 W: 1131320
 TOWNRANGE: 015N013W SECTION: 22 MERIDIAN: PR
 TRSCOMM: E2SE4 PHYSPROV: NR WATERSHED: 17010203
 DIRECTIONS: MONTURE CREEK FISHING ACCESS SITE, SOUTH SIDE OF ST. HWY.
 200 CA. 4.5 MILES WEST OF OVANDO.

GENDESC: LOAM SOILS; ARTEMISIA TRIDENTATA/FESTUCA SCABRELLA/PINUS
 PONDEROSA, WITH ACHILLEA MILLEFOLIUM, CENTAUREA MACULOSA,
 GERANIUM VISCOSISSIMUM, SOLIDAGO, CHRYSOPSIS.

EOTV: 4020 SIZE: 15
 ESDATA: CA. 225-250 PLANTS ON RIDGE, CA. 200 ON RIVER TERRACES ON
 EACH SIDE OF MONTURE CREEK; IN FLOWER AND FRUIT.

COMMENTS: VOUCHER-SHELLY, J.S. (1301), 1986, MONTU.

MACODE1: MTSFWFAMONT1 CONTAINED1: Y MACODE2: CONTAINED2:
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME: MONTURE CREEK ACCESS
 OWNER:
 OWNERCOMM:
 PROTCOMM: SITE IS ON MONTURE CREEK FISHING ACCESS SITE.
 MGMTCOMM:
 MONITOR: MONITORNUM: -
 BESTSOURCE: SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS.
 OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.
 SOURCECODE: F86SHE08MT PNDSEHE01MT S86SHEUMMT A34STE02MT

DATASENS: N BOUNDARIES: Y PHOTOS: N OWNERINFO:
 TRANSCRIBR: 86-09-12 JSS CDREV: Y MAPPER: 86-09-15 CDJ QC: Y
 UPDATE: 86-10-28 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.044
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 10 TENTEN: 7,8 IDENT: Y EORANK: BC
 EORANKCOMM: MODERATE-SIZED POPULATION, HABITAT CREATED BY DISTURBANCE.
 SURVEYDATE: 1986-08-05 LASTOBS: 1986-08-05 FIRSTOBS: 1986 GRANK: 63
 SRANK: S3 STATE: MT COUNTYNAME: MTMISS
 QUADCODE: 4711314
 QUADNAME: SALMON LAKE PRECISION: SC
 LAT: 470147 LONG: 1132451 S: 470145 N: 470152 E: 1132445 W: 1132505
 TOWNRANGE: 015N014W SECTION: 30 MERIDIAN: PR
 TRSCOMM: N2NE4 PHYSPROV: NR WATERSHED: 17010203
 DIRECTIONS: CA. 0.8 AIR MILES WEST OF CLEARWATER RIVER, CA. 0.25 AIR
 MILES WEST OF LOLO N.F. ROAD 4336 ON OLD LOGGING TRAIL, CA.
 3 MILES NNW. OF ST. HWY. 200.
 GENDESC: GRAVELLY LOAM SOILS; PINUS PONDEROSA/PINUS CONTORTA/
 PSEUDOTSUGA MENZIESII/LARIX OCCIDENTALIS, WITH ACHILLEA
 MILLEFOLIUM, POTENTILLA GRACILIS, CIRSIIUM, CENTAUREA.
 EV: 4020 SIZE: 5
 EUDATA: EST. 150-160 PLANTS; 108 FLOWERING STEMS COUNTED, CA. 40-50
 ROSETTES; FLOWERS AND EARLY FRUIT; PLANTS FOUND ONLY IN AND
 ALONG AN OLD, LITTLE USED LOGGING TRAIL, IN SMALL CLEARINGS
 IN THE WOODS.
 COMMENTS: VOUCHER-SHELLY, J.S. (1302), 1986, MONTU.
 MACODE1: MTSSLGNXXXX1 CONTAINED1: Y MACODE2: MTSSLSFCLEA1 CONTAINED2:
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME: CLEARWATER BACKROAD
 OWNER:
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM:
 BESTSOURCE: SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS.
 OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.
 SOURCECODE: F86SHE08MT PNDSE01MT S86SHEUMMT A34STE02MT
 DATASENS: N BOUNDARIES: Y PHOTOS: N OWNERINFO:
 TRANSCRIBR: 86-09-16 JSS CDREV: Y MAPPER: 86-09-17 CDJ QC: Y
 UPDATE: 86-09-23 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.045
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 5 TENTEN: 3,2 IDENT: Y EORANK: CD
 EORANKCOMM: SMALL, SCATTERED SUB-POPULATIONS, DISTURBED HABITAT.
 SURVEYDATE: 1986-08-21 LASTOBS: 1986-08-21 FIRSTOBS: 1986 GRANK: G3
 SRANK: S3 STATE: MT COUNTYNAME: MTPOWE
 QUADCODE: 4711312
 QUADNAME: OVANDO PRECISION: SC
 LAT: 470652 LONG: 1131256 S: 470650 N: 470705 E: 1131253 W: 1131349
 TOWNRANGE: 016N013W SECTION: 26 MERIDIAN: PR
 TRSCOMM: SW4NW4,27NE4 PHYSPROV: NR WATERSHED: 17010203
 DIRECTIONS: ALONG CHAMPION INTERNATIONAL LOGGING ROADS, CA. 1/2 MILE
 SOUTH OF LOLO N.F. RD. 477, CA. 3.5 AIR MILES WSW. OF
 MONTURE CREEK CAMPGROUND, ADJACENT TO SHANLEY CREEK.
 GENDESC: LOAM AND CLAY LOAM SOILS; LOGGED LARIX OCCIDENTALIS/
 PSEUDOTSUGA MENZIESII/PINUS CONTORTA, WITH CENTAUREA
 MACULOSA, PHLEUM PRATENSE, CIRSIIUM ARVENSE, C. VULGARE.
 IV: 4800 SIZE: 40
 EODATA: 44 PLANTS COUNTED; FLOWERS AND EARLY FRUIT; PLANTS OCCUR IN
 SMALL, SCATTERED CLUMPS ALONG OLD LOGGING ROADS.

COMMENTS: VOUCHER-SHELLY, J.S. (1303) AND G.V. KING, 1986, MONTU.

MACODE1: MTPCHAMPIONI CONTAINED1: Y MACODE2: CONTAINED2:
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME: SHANLEY CREEK
 OWNER:
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM:
 BESTSOURCE: SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS.
 OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.
 SOURCECODE: F86SHE08MT PNDSEHE01MT S86SHEUMMT A34STE02MT

DATASENS: N BOUNDARIES: Y PHOTOS: N OWNERINFO:
 TRANSCRIBR: 86-09-16 JSS CDREV: Y MAPPER: 86-09-17 CDJ QC: Y
 UPDATE: 86-09-23 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.046
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 1 TENTEN: 5,8 IDENT: Y EORANK: D
 EORANKCOMM: SMALL POPULATION, HEAVILY DISTURBED HABITAT.
 SURVEYDATE: 1986-08-21 LASTOBS: 1986-08-21 FIRSTOBS: 1986 GRANK: G3
 SRANK: S3 STATE: MT COUNTYNAME: MTMISS
 QUADCODE: 4711323
 QUADNAME: MORRELL MOUNTAIN PRECISION: SC
 LAT: 470857 LONG: 1131853 S: 0 N: 0 E: 0 W: 0
 TOWNRANGE: 016N014W SECTION: 13 MERIDIAN: PR
 TRSCOMM: NE4NW4 PHYSPROV: NR WATERSHED: 17010203
 DIRECTIONS: NEAR COTTONWOOD CREEK, AT JCT. OF LOLO N.F. ROAD 477 AND
 ROAD SOUTH TO COZY CORNERS (LOWER COTTONWOOD RD), CA. 7.5
 AIR MILES ESE. OF SEELEY LAKE (TOWN).
 GENDESC: ROADSIDE; SURROUNDING FOREST OF LARIX OCCIDENTALIS/PINUS
 CONTORTA/PSEUDOTSUGA MENZIESII/PICEA ENGELMANNII, WITH
 VERBASCUM THAPSUS, ACHILLEA MILLEFOLIUM, CIRSIUM, PHLEUM.
 EV: 4611 SIZE: 1
 EODATA: 27 PLANTS COUNTED; SMALL POPULATION NEAR ROAD JUNCTION.

COMMENTS: SIGHT RECORD, NO VOUCHER SPECIMEN COLLECTED.

MACODE1: MTFFSNFLOLO1 CONTAINED1: Y MACODE2: CONTAINED2:
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME: LOWER COTTONWOOD ROAD
 OWNER:
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM:
 BESTSOURCE: SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS.
 OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.
 SOURCECODE: F86SHE08MT PNDSEH01MT A34STE02MT

DATASENS: N BOUNDARIES: Y PHOTOS: N OWNERINFO:
 TRANSCRIBR: 86-09-16 JSS CDREV: Y MAPPER: 86-09-17 CDJ QC: Y
 UPDATE: 86-09-23 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.047
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 11 TENTEN: 4,2 IDENT: Y EORANK: AB
 EORANKCOMM: LARGEST POPULATION IN MONTANA, STATE-OWNED LAND.
 SURVEYDATE: 1986-08-21 LASTOBS: 1986-08-21 FIRSTOBS: 1986 GRANK: 63
 SRANK: 53 STATE: MT COUNTYNAME: MTMISS
 QUADCODE: 4711313
 QUADNAME: WOODWORTH PRECISION: SC
 LAT: 470653 LONG: 1131927 S: 0 N: 0 E: 0 W: 0
 TOWNRANGE: 016N014W SECTION: 26 MERIDIAN: PR
 TRSCOMM: SE4NE4 PHYSPROV: NR WATERSHED: 17010203
 DIRECTIONS: WEST SIDE OF LOWER COTTONWOOD ROAD, 0.5 MILES NORTH OF COZY
 CORNERS, 1 MILE WEST OF MISSOULA-POWELL COUNTY LINE.

GENDESC: GRAVELLY LOAM SOIL; GRAZED PASTURE, ADJACENT TO PINUS
 PONDEROSA/LARIX OCCIDENTALIS/PICEA ENGELMANNII FOREST, WITH
 CENTAUREA MACULOSA, VERBASCUM THAPSUS, POA PRATENSIS.

EV: 4280 SIZE: 5
 EUDATA: EST. 3000 PLANTS; FRUIT, LATE FLOWER; ELEMENT IS THE
 DOMINANT FORB AT THIS SITE, AND OCCURS IN A SMALL, FENCED
 PASTURE ON STATE LAND; DENSEST POPULATION STUDIED.

COMMENTS: VOUCHER-SHELLY, J.S. (1304) AND G.V. KING, 1986, MONTU.

MACODE1: MTSSLGNXXXX1 CONTAINED1: Y MACODE2: MTSSLSFCLEA1 CONTAINED2: ?
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME: COZY CORNERS
 OWNER:
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM:
 BESTSOURCE: SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS.
 OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.
 SOURCECODE: F86SHE08MT PNDSEHE01MT S86SHEUMMT A34STE02MT

DATASENS: N BOUNDARIES: Y PHOTOS: N OWNERINFO:
 TRANSCRIBR: 86-09-16 JSS CDREV: Y MAPPER: 86-09-17 CDJ QC: Y
 UPDATE: 86-09-23 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.048
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 2 TENTEN: 5,10 IDENT: Y EORANK: D
 EORANKCOMM: SMALL, ROADSIDE POPULATION.
 SURVEYDATE: 1986-08-21 LASTOBS: 1986-08-21 FIRSTOBS: 1986 GRANK: G3
 SRANK: S3 STATE: MT COUNTYNAME: MTMISS
 QUADCODE: 4711323
 QUADNAME: MORRELL MOUNTAIN PRECISION: SC
 LAT: 470745 LONG: 1131841 S: 0 N: 0 E: 0 W: 0
 TOWNRANGE: 016N014W SECTION: 24 MERIDIAN: PR
 TRSCOMM: SW4NE4 PHYSPROV: NR WATERSHED: 17010203
 DIRECTIONS: WEST SIDE OF LOWER COTTONWOOD ROAD, JUST NORTH OF SPRING
 CREEK ROAD, 0.44 AIR MILES WEST OF MISSOULA-POWELL COUNTY
 LINE.
 GENDESC: GRAVEL ROADSIDE; PINUS CONTORTA/LARIX OCCIDENTALIS/
 PSEUDOTSUGA MENZIESII, WITH CENTAUREA MACULOSA, ROSA SP.,
 POA SP., VERBASCUM THAPSUS.
 TV: 4400 SIZE: 1
 EUDATA: 40 PLANTS, INCLUDING ROSETTES, COUNTED; SMALL, ROADSIDE
 POPULATION.

COMMENTS: VOUCHER-SHELLY, J.S. (1305) AND G.V. KING, 1986, MONTU.

MACODE1: MTPCHAMPIONI CONTAINED1: Y MACODE2: CONTAINED2:
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME: SPRING CREEK ROAD
 OWNER:
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM:
 BESTSOURCE: SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS.
 OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.
 SOURCECODE: F86SHE08MT PNDSEH01MT S86SHEUMMT A34STE02MT

DATASENS: N BOUNDARIES: Y PHOTOS: N OWNERINFO:
 TRANSCRIBR: 86-09-16 JSS CDREV: Y MAPPER: 86-09-17 CDJ QC: Y
 UPDATE: 86-09-23 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.049
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 11 TENTEN: 3,2 IDENT: Y EORANK: D
 EORANKCOMM: SCATTERED, ROADSIDE POPULATIONS.
 SURVEYDATE: 1986-08-21 LASTOBS: 1986-08-21 FIRSTOBS: 1986 GRANK: 63
 SRANK: S3 STATE: MT COUNTYNAME: MTMISS
 QUADCODE: 4711314
 QUADNAME: SALMON LAKE PRECISION: SC
 LAT: 470638 LONG: 1132719 S: 470618 N: 470640 E: 1132702 W: 1132904
 TOWNRANGE: 016N015W SECTION: 26 MERIDIAN: PR
 TRSCOMM: S2,34NE4NE4 PHYSPROV: NR WATERSHED: 17010203
 DIRECTIONS: ALONG CHAMPION INTERNATIONAL LOGGING ROAD, ON SLOPE SOUTH OF
 OWL CREEK, CA. 1.0-2.5 AIR MILES ESE. OF EAST END OF PLACID
 LAKE.
 GENDESC: GRAVELLY LOAM SOILS; PSEUDOTSUGA MENZIESII/PINUS CONTORTA/
 LARIX OCCIDENTALIS, WITH CENTAUREA MACULOSA, PHLEUM
 PRATENSE, ACHILLEA MILLEFOLIUM.
 EV: 4120 SIZE: 5
 EUDATA: CA. 140 PLANTS COUNTED, INCLUDING ROSETTES, IN FOUR SUBPOPU-
 LATIONS; PLANTS OCCUR ALONG LITTLE-USED LOGGING ROAD, AND IN
 A PULL-OUT AREA (EAST SUBPOPULATION).
 COMMENTS: VOUCHER-SHELLY, J.S. (1306) AND G.V. KING, 1986, MONTU; MAY
 ALSO BE PARTIALLY ON CLEARWATER STATE FOREST LAND.
 MACODE1: MTSSLGNXXXX1 CONTAINED1: N MACODE2: MTPCHAMPIONI CONTAINED2: I
 MACODE3: MTFFWWMBLAC2 CONTAINED3: Y ADLMAS: Y MORELAN: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME: OWL CREEK UPLANDS
 OWNER:
 OWNERCOMM:
 PROTCOMM: BLACKFOOT-CLEARWATER WILDLIFE MANAGEMENT AREA.
 MGMTCOMM:
 MONITOR: MONITORNUM:
 BESTSOURCE: SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS.
 OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.
 SOURCECODE: F86SHE08MT PNDSE01MT S86SHEUMMT A34STE02MT
 DATASENS: N BOUNDARIES: Y PHOTOS: N OWNERINFO:
 TRANSCRIBR: 86-09-16 JSS CDREV: Y MAPPER: 86-09-17 CDJ QC: Y
 UPDATE: 86-09-23 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.050
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 3 TENTEN: 8,3 IDENT: Y EORANK: D
 EORANKCOMM: SMALL POPULATION, RECENTLY DISTURBED HABITAT.
 SURVEYDATE: 1986-08-22 LASTOBS: 1986-08-22 FIRSTOBS: 1986 GRANK: G3
 SRANK: S3 STATE: MT COUNTYNAME: MTMISS
 QUADCODE: 4711315
 QUADNAME: BELMONT POINT PRECISION: SC
 LAT: 470549 LONG: 1133111 S: 0 N: 0 E: 0 W: 0
 TOWNRANGE: 016N015W SECTION: 32 MERIDIAN: PR
 TRSCOMM: N2SE4 PHYSPROV: NR WATERSHED: 17010203
 DIRECTIONS: ON RIDGE, 0.72 AIR MILES SOUTH OF SOUTH SHORE OF PLACID
 LAKE, 0.6 AIR MILES WEST OF VAUGHN CREEK.

GENDESC: LOAM SOILS; RECENTLY LOGGED AND BURNED CLEARCUT;
 PSEUDOTSUGA MENZIESII/PINUS CONTORTA/LARIX OCCIDENTALIS,
 WITH PSEUDOROEGNERIA SPICATA, FESTUCA IDAHOENSIS.
 EV: 4620 SIZE: 1
 EODATA: 8 PLANTS COUNTED, IN FRUIT; POPULATION MAY POSSIBLY EXPAND,
 AS SURROUNDING HABITAT HAS BEEN DISTURBED.

COMMENTS: SIGHT RECORD, NO VOUCHER SPECIMEN COLLECTED.

MACODE1: MTSSLGNXXXX1 CONTAINED1: Y MACODE2: MTFFSNFLOLO1 CONTAINED2: Y
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME: PLACID LAKE CLEARCUT
 OWNER:
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM:
 BESTSOURCE: SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS.
 OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.
 SOURCECODE: F86SHE08MT PNDSE01MT A34STE02MT

DATASENS: N BOUNDARIES: Y PHOTOS: N OWNERINFO:
 TRANSCRIBR: 86-09-16 JSS CDREV: Y MAPPER: 86-09-17 CDJ QC: Y
 UPDATE: 86-09-23 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.051
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 1 TENTEN: 2,2 IDENT: Y EORANK: D
 EORANKCOMM: SMALL, SCATTERED POPULATIONS ALONG ROADS.
 SURVEYDATE: 1986-07-29 LASTOBS: 1986-07-29 FIRSTOBS: 1986 GRANK: G3
 SRANK: S3 STATE: MT COUNTYNAME: MTMISS
 QUADCODE: 4711345
 QUADNAME: HOLLAND LAKE PRECISION: SC
 LAT: 472844 LONG: 1133633 S: 472818 N: 472846 E: 1133602 W: 1133720
 TOWNRANGE: 020N016W SECTION: 23 MERIDIAN: PR
 TRSCOMM: SW4NW4, SE4SW4; 22NW4 PHYSPROV: NR WATERSHED: 17010211
 DIRECTIONS: SWAN VALLEY, ALONG FLATHEAD N.F. ROAD 9668, 0.25 AND 0.85
 ROAD MILES SE. OF JCT. WITH BARBER CREEK ROAD (NO. 905);
 ALSO AT JCT. OF ROADS 905 AND 9665.
 GENDESC: LOAM SOILS; CLEARCUT, LARIX OCCIDENTALIS/EPILOBIUM
 ANGUSTIFOLIUM/ACER GLABRUM, WITH RUBUS PARVIFLORUS,
 CEANOTHUS VELUTINUS.
 IV: 4440 SIZE: 3
 EUDATA: 12 PLANTS TOTAL; 2 PLANTS WITH GLABROUS STEMS (I.E.,
 G. SQUARROSA) FOUND IN SE. SUBPOPULATION; MOST PLANTS IN
 CLEARCUT AREA.
 COMMENTS: VOUCHER-SHELLY, J.S. (1272) AND G.V. KING, 1986, MONTU.
 MACODE1: MTFFSNFFLAT1 CONTAINED1: Y MACODE2: CONTAINED2:
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME: BARBER CREEK
 OWNER:
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM:
 BESTSOURCE: SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS.
 OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.
 SOURCECODE: F86SHE08MT PNDSEHE01MT S86SHEUMMT A34STE02MT
 DATASENS: N BOUNDARIES: Y PHOTOS: N OWNERINFO:
 TRANSCRIBR: 86-09-16 JSS CDREV: Y MAPPER: 86-09-17 CDJ QC: Y
 UPDATE: 86-09-23 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.052
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 7 TENTEN: 10,3 IDENT: Y EORANK: D
 EORANKCOMM: ROADSIDE POPULATION, DISTURBED AREA.
 SURVEYDATE: 1986-07-29 LASTOBS: 1986-07-29 FIRSTOBS: 1986 GRANK: G3
 SRANK: S3 STATE: MT COUNTYNAME: MTMISS
 QUADCODE: 4711346
 QUADNAME: CYGNET LAKE PRECISION: SC
 LAT: 472802 LONG: 1133740 S: 0 N: 0 E: 0 W: 0
 TOWNRANGE: 020N016W SECTION: 27 MERIDIAN: PR
 TRSCOMM: NW4NW4 PHYSPROV: NR WATERSHED: 17010211
 DIRECTIONS: ALONG SOUTH FORK BARBER CREEK ROAD (FLATHEAD N.F. ROAD
 9768), CA. 2 AIR MILES EAST OF ST. HWY. 83, CA. 1.5 AIR
 MILES NW. OF HOLLAND LAKE.
 GENDESC: GRAVELLY LOAM SOILS; PSEUDOTSUGA MENZIESII/PINUS CONTORTA/
 ACER GLABRUM IN SURROUNDING FOREST, WITH VERBASCUM THAPSUS,
 CIRSIUM VULGARE, ACHILLEA MILLEFOLIUM.
 ELEV: 4120 SIZE: 1
 EODATA: 23 PLANTS IN ROAD AND ON ROADBANK.

COMMENTS: VOUCHER-SHELLY, J.S. (1274) AND G.V. KING, 1986, MONTU.

MACODE1: MTPBURLNORTH CONTAINED1: Y MACODE2: MTFFSNFFLAT1 CONTAINED2: Y
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME: SOUTH FORK BARBER CREEK
 OWNER: BURLINGTON NORTHERN
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM:
 BESTSOURCE: SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS.
 OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.
 SOURCECODE: F86SHE08MT PNDSE01MT S86SHEUMMT A34STE02MT

DATASENS: N BOUNDARIES: Y PHOTOS: N OWNERINFO:
 TRANSCRIBR: 86-09-17 JSS CDREV: Y MAPPER: 86-09-17 CDJ QC: Y
 UPDATE: 86-09-23 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.053
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 3 TENTEN: 6,7 IDENT: Y EORANK: B
 EORANKCOMM: LARGE POPULATION, NATIVE & DOMESTIC PASTURE LAND.
 SURVEYDATE: 1986-08-16 LASTOBS: 1986-08-16 FIRSTOBS: 1986 GRANK: G3
 SRANK: S3 STATE: MT COUNTYNAME: MTMISS
 QUADCODE: 4611384
 QUADNAME: GREENOUGH PRECISION: SC
 LAT: 465453 LONG: 1132538 S: 465450 N: 465457 E: 1132535 W: 1132545
 TOWNRANGE: 013N014W SECTION: 06 MERIDIAN: PR
 TRSCOMM: NW4NW4;T13NR5W:1NE4 PHYSPROV: NR WATERSHED: 17010203
 DIRECTIONS: GREENOUGH, 0.4 AIR MILES ESE. OF TOWNSITE, 0.45 AIR MILES
 EAST OF ST. HWY. 200, 0.1 AIR MILES SOUTH OF SUNSET SCHOOL.

GENDESC: LOAM TO CLAY LOAM SOILS; PASTURE ADJACENT TO PINUS PONDEROSA
 STAND, WITH DESCHAMPSIA CESPITOSA, D. DANTHONIOIDES,
 SITANION HYSTRIX, PHLEUM PRATENSE, POA, CAREX.

ELEV: 3760 SIZE: 5
 EODATA: CA. 500-600 PLANTS; DENSEST IN MOISTER SITES, I.E., ADJACENT
 TO GULLY AND OLD RESERVOIR, WITH FEWER PLANTS ON ROADSIDE
 NEAR STANDS OF CENTAUREA MACULOSA.

COMMENTS: VOUCHER-CHAFFEE, G. (C-1), 1986, MONTU.

MACODE1: MTPRIVATEOWN CONTAINED1: Y MACODE2: CONTAINED2:
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:

MOREMGMT: SITECODE:
 SITENAME: GREENOUGH SCHOOL PASTURE
 OWNER: UNKNOWN

OWNERCOMM:

PROTCOMM:

MGMTCOMM:

MONITOR:

MONITORNUM:

BESTSOURCE: CHAFFEE, G. 1986. FIELD SURVEYS IN MISSOULA COUNTY OF 14-18
 AUGUST.

SOURCECODE: F86CHA01MT PNDCHA01MT S86CHAUMMT A34STE02MT

DATASENS: N BOUNDARIES: Y PHOTOS: N OWNERINFO:
 TRANSCRIBR: 86-09-17 JSS CDREV: Y MAPPER: 86-09-17 JSS QC: Y
 UPDATE: 86-09-23 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.054
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 4 TENTEN: 10,5 IDENT: Y EORANK: C
 EORANKCOMM: SMALL POPULATION, HABITAT IN GOOD CONDITION.
 SURVEYDATE: 1986-08-16 LASTOBS: 1986-08-16 FIRSTOBS: 1986 GRANK: G3
 SRANK: S3 STATE: MT COUNTYNAME: MTMISS
 QUADCODE: 4611384
 QUADNAME: GREENOUGH PRECISION: SC
 LAT: 465622 LONG: 1132243 S: 0 N: 0 E: 0 W: 0
 TOWNRANGE: 014N014W SECTION: 28 MERIDIAN: PR
 TRSCOMM: W2 PHYSPROV: NR WATERSHED: 17010203
 DIRECTIONS: ALONG LITTLE FISH CREEK, 0.3 AIR MILES EAST OF BLACKFOOT
 RIVER, CA. 1.5 MILES NE. OF SUNSET HILL, CA. 3 AIR MILES NE.
 OF GREENOUGH.
 GENDESC: SILTY LOAM SOILS; PINUS PONDEROSA/SYMPHORICARPOS ALBUS/POA/
 TRIFOLIUM, WITH BROMUS INERMIS, LINARIA VULGARIS, PHLEUM
 PRATENSE, ACHILLEA MILLEFOLIUM.
 ELEV: 3820 SIZE: 1
 EODATA: 27 PLANTS COUNTED; ALONG ROAD.

COMMENTS: VOUCHER-CHAFFEE, G. (C-2), 1986, MONTU.

MACODE1: MTPRIVATEOWN CONTAINED1: Y MACODE2: CONTAINED2:
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME: LITTLE FISH CREEK
 OWNER: UNKNOWN
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM:
 BESTSOURCE: CHAFFEE, G. 1986. FIELD SURVEYS IN MISSOULA COUNTY OF 14-18
 AUGUST.
 SOURCECODE: FB6CHA01MT PNDCHA01MT S86CHAUMMT A34STE02MT

DATASENS: N BOUNDARIES: Y PHOTOS: N OWNERINFO:
 TRANSCRIBR: 86-09-17 JSS CDREV: Y MAPPER: 86-09-17 JSS QC: Y
 UPDATE: 86-09-23 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDAST470E0.055
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUM-WEED
 MARGNUM: 5 TENTEN: 5,7 IDENT: Y EORANK: B
 EORANKCOMM: MODERATE-SIZED POPULATION, HABITAT IN GOOD CONDITION.
 SURVEYDATE: 1986-08-18 LASTOBS: 1986-08-18 FIRSTOBS: 1986 GRANK: 63
 SRANK: 53 STATE: MT COUNTYNAME: MTMISS
 QUADCODE: 4611384
 QUADNAME: GREENOUGH PRECISION: SC
 LAT: 465457 LONG: 1132608 S: 465452 N: 465500 E: 1132605 W: 1132613
 TOWNRANGE: 013N015W SECTION: 01 MERIDIAN: PR
 TRSCOMM: NW4NE4 PHYSPROV: NR WATERSHED: 17010203
 DIRECTIONS: GREENOUGH (TOWNSITE), 0.1 AIR MILES EAST OF ST. HWY. 200.

GENDESC: LOAM TO CLAY LOAM SOILS; NATIVE/DOMESTIC HAYLAND, WITH
 POA PRATENSIS, PHLEUM PRATENSE, ROSA, CENTAUREA MACULOSA,
 ACHILLEA MILLEFOLIUM, CIRSIIUM CANADENSE.

ELEV: 3780 SIZE: 5
 EODATA: 150 PLANTS COUNTED; PLANTS OCCUR ON A DRIER SLOPE, AND
 EXTEND INTO WET MEADOW AREA; GOOD DISTRIBUTION OF AGE
 CLASSES.

COMMENTS: VOUCHER-CHAFFEE, G. (C-3), 1986, MONTU.

MACODE1: MTPRIVATEOWN CONTAINED1: Y MACODE2: CONTAINED2:
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:

MOREMGMT: SITECODE:

SITENAME: GREENOUGH

OWNER: UNKNOWN

OWNERCOMM:

PROTCOMM:

MGMTCOMM:

MONITOR:

MONITORNUM:

BESTSOURCE: CHAFFEE, G. 1986. FIELD SURVEYS IN MISSOULA COUNTY OF 14-18
 AUGUST.

SOURCECODE: F86CHA01MT PNDCHA01MT S86CHAUMMT A34STE02MT

DATASENS: N BOUNDARIES: Y PHOTOS: N OWNERINFO:
 TRANSCRIBR: 86-09-17 JSS CDREV: Y MAPPER: 86-09-18 JSS QC: Y
 UPDATE: 86-09-23 JSS

EOCODE: PDAST470E0.001
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUMWEED
 MARGNUM: 1 IDENT: Y EORANK: BC
 EORANKCOMM:
 SURVEYDATE: LASTOBS: 1979SUMMER FIRSTOBS: 1978 GRANK: G2
 SRANK: ~~52~~51 STATE: ID COUNTYCODE: ID009
 COUNTYNAME: BENE
 QUADCODE: 4711625
 QUADNAME: EMIDA (15') PRECISION: M
 LAT: 471405 LONG: 1163645 S: 471100 N: 471500 E: 1163000 W: 1163830
 TOWNRANGE: 045N002W SECTION: 20 MERIDIAN: BO
 TRSCOMM: PHYSPROV: WATERSHED: 17010304
 DIRECTIONS: BREAKS OF THE ST. MARIES RIVER

GENDESC: MESIC SITE ADJACENT TO MOIST SEEP IN AN OPENING AMID
 FOREST

ELEV: 2500 SIZE: 0
 DATA: PSEUDOTSUGA MENZIESII - PINUS PONDEROSA FOREST

COMMENTS: BRUNSFELD 79438 (IDF)

MACODE1: CONTAINED1: MACODE2: CONTAINED2:
 MACODE3: CONTAINED3: ADDLMAS: MORELAND: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME: BREAKS OF THE ST. MARIES RIVER
 OWNER:
 OWNERCOMM: COULD BE STATE OR PRIVATE; NEED PRECISE LOCATION
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM:
 BESTSOURCE: BRUNSFELD, STEVEN

SOURCECODE: PNDBRU01

DATASENS: N BOUNDARIES: N PHOTOS: N QUALSURV: N QUANSURV: N
 OWNERINFO: N TRANSCRIBR: 84-10-17 SLC CDREV: Y MAPPER: 84-10-17 SLC
 QC: Y UPDATE:

EOCODE: PDAST470E0.002
 NAME: GRINDELIA HOWELLII
 COMNAME: HOWELL'S GUMWEED
 MARGNUM: 2 IDENT: Y EORANK: BC
 EORANKCOMM:
 SURVEYDATE: LASTOBS: 1979SUMMER FIRSTOBS: 1978 GRANK: G2
 SRANK: 8251 STATE: ID COUNTYCODE: ID009
 COUNTYNAME: BENE
 QUADCODE: 4711615
 QUADNAME: EMIDA (15') PRECISION: S
 LAT: 471245 LONG: 1163330 S: 471130 N: 471500 E: 1163000 W: 1163830
 TOWNRANGE: 045N002W SECTION: 26 MERIDIAN: BO
 TRSCOMM: PHYSPROV: WATERSHED: 17010304
 DIRECTIONS: OVERLOOKING "ST. MARIES TRIBUTARY ROAD" FROM LINDSTROM PEAK
 (=CARDWELL BRANCH OF FLAT CREEK ROAD-SLC) SW OF STATE HWY E,
 FROM SEVEN MILES SOUTH OF ST. MARIES.
 GENDESC: NW-FACING HILLSIDE ALONG "PARTIALLY WOODED RIDGETOP EDGES,"
 AND ON HIGH BLUFFS AT THE RIVER BEND ON A LOWER CLEARCUT
 NEAR RIVER; 5-50 DEGREE SLOPE.
 ELEV: 2800 SIZE: 0
 ESADATA: OCCASIONAL, ALMOST EXCLUSIVELY RESTRICTED TO SLOPES WITH
 BARE SOIL, EXCEPT FOR A FEW RIDGETOP INDIVIDUALS; LOCALLY
 ABUNDANT IN SMALL BARE AREAS SCATTERED ALONG 1/2 MILE OF
 RIVER LENGTH.
 COMMENTS: HEIDEL BLM REPORT (1979); T. REIGER COLLECTION 78-08-23;
 ALSO S.J. BRUNSFELD 79422-MAY BE MORE THAN ONE EO.
 MACODE1: IDFFSNFSTJ03 CONTAINED1: ? MACODE2: CONTAINED2:
 MACODE3: CONTAINED3: ADDLMAS: MORELAND: ? MOREPROT: ?
 MOREMGMT: ? SITECODE:
 SITENAME: OVERLOOKING ST. MARIES TRIBUTARY ROAD
 OWNER:
 OWNERCOMM: MAY ALSO OCCUR ON PRIVATE LAND NEARBY.
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM: -
 BESTSOURCE: BRUNSFELD, STEVEN
 SOURCECODE: PNDBRU01 PNDHEI01
 DATASENS: N BOUNDARIES: N PHOTOS: N QUALSURV: N QUANSURV: N
 OWNERINFO: N TRANSCRIBR: 84-10-17 SLC CDREV: Y MAPPER: 84-10-19 SLC
 QC: Y UPDATE: - -

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